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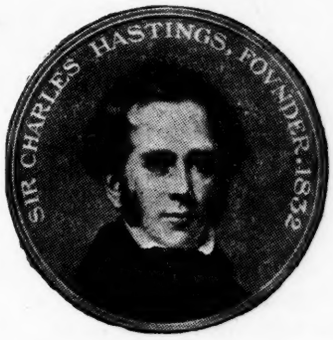

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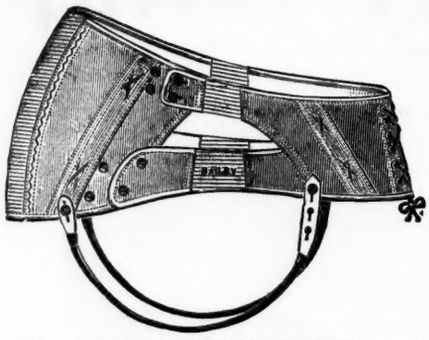

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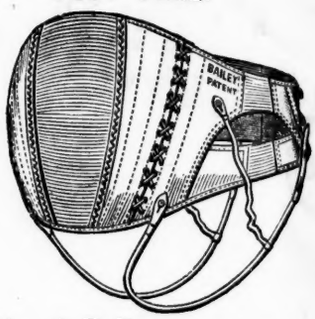

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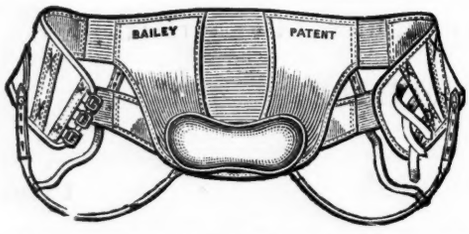

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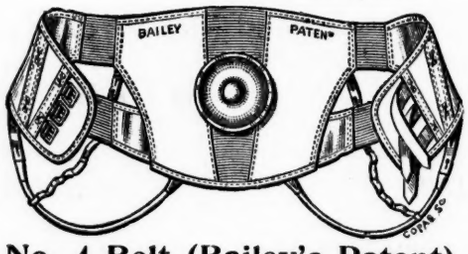

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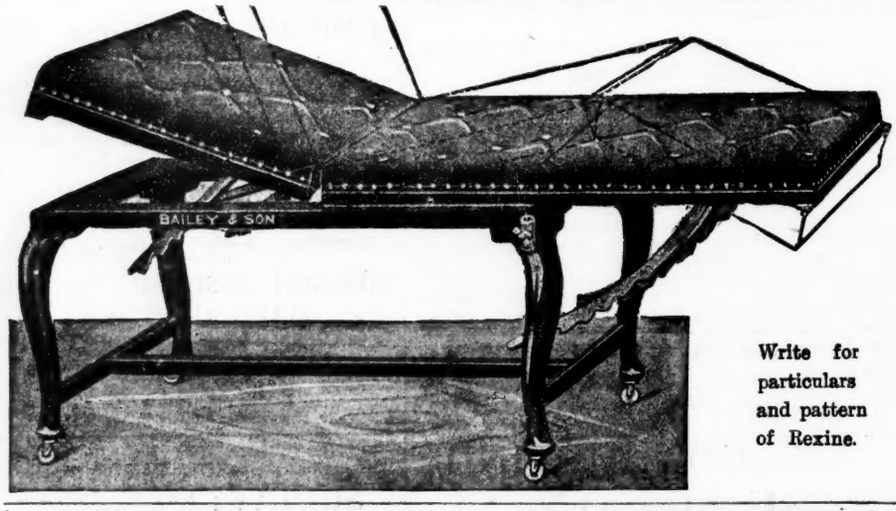

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ON

THE SURGERY OF THE BLOOD.

BY

THOMAS SINCLAIR, C.B., M.D., F.R.C.S.,

PROFESSOR OF SURGERY IN THE QUEEN'S UNIVERSITY OF BELFAST.

In selecting a theme for this, the first Robert Campbell Memorial Oration, which the trustees have done me the honour of inviting me to deliver, my object has been to find one that would have interest for physicians and surgeons alike rather than one of purely surgical concern, with its wearisome details of minute technique. I trust that in discussing the surgery of the blood, as allusion must be made to various organic diseases of the haemopoietic system, it would be more correct, and more in harmony with medical nomenclature, to regard the blood dyscrasias as secondary phenomena. I hope to justify my presentation of the blood diseases by viewing them from a different angle, and by pleading that the pathology of the anaemias remains obscure.

Colnheim's conception of the blood as a tissue consisting of cells and a fluid intercellular substance is attractive, and suits my present purpose, although it must be admitted that its cells differ from those of other tissues in their incapacity to multiply and reproduce their like. This conception of the blood raises its dignity from that of a mere circulating medium, a servant to the more stable tissues, carrying to them the materials for their sustenance and renovation, and at the same time doing all the scavenging they require for the smooth performance of their functions. Such adulteration as these menial services imply may appear to detract from its stability and render it unworthy to rank with the fixed tissues as a constructional entity. But the more its characters are studied the more are we impressed with its marvellous capacity for clearing itself and maintaining a relative constancy or homogeneity of composition and structure.

What tissue allows so many liberties to be taken with it and withal retains its vitality and identity? What tissue can vie with it in rapid restoration after haemorrhage, haemolysis in fevers, and other distempers? What other tissue would survive the insults and abuse of injections into it of copious solutions of salt and soda, eusol, mercurial salts, gelatin, gum arabic, ether, alcohol, aniline dyes, and the homologous blood of other persons, whether freshly drawn or bottled and kept in cold storage for a month or more? Still more the injections of vaccines and serums, often in large volume, at the hands of eager bacteriologists and haematologists—as, for example, in the Argentine treatment of anthrax, or in the treatment of pneumonia and tetanus.

Haemophilia.

Nothing has yet been ascertained as to the essential nature of this strange complaint. We do not know wherein consists the defective coagulation, which may take thirty to fifty minutes to accomplish, as compared with the four to five minutes in normal blood when tested by Sir Almroth Wright's method. Must we accept what seems a counsel of despair? or is it a counsel of perfection when non-sentimental eugenists forbid the girls of haemophilic families to marry, or, if they marry, to stipulate that they shall not bear children?

Hitherto the surgical rule has been to confine operations upon haemophilics to those of primary surgical urgency. Can we do anything to qualify haemophilics for expediency operations, and render these proceedings reasonably safe? Several experiences of my own in this regard make me think that we can. There are degrees of severity in haemophilia, and if we take the milder forms we may test by Wright's process before and again after a few days of preparatory treatment by calcium salts, haemoplastic serum, or repeated small transfusions of homologous blood at short intervals. Even the subcutaneous injection daily of 40 c.cm. of any mammalian blood, or of human blood not necessarily homologous, may temporarily increase the thrombin elements, and enable us to discriminate those who do not respond, and remain ineligible for operations, from those who do.

Pernicious Anaemia.

In pernicious anaemia the part played by surgery has hitherto been inglorious if we consider the results of splenectomy in the management of the ordinary type; while in the Addisonian variety the extirpation of the adrenals has been equally unsuccessful. The latest results from the Mayo clinic, however, show some improvement, possibly from improved technique and a careful selection of cases. The Mayo clinic claims now that a couple of years may be added to the life of these patients by a timely splenectomy, combined with transfusions of whole blood carried out after a preparatory treatment by radium, which appears to render the splenectomy much safer. It is doubtful whether the spleen is the seat of the disease, and so accomplished a surgeon as Moynihan, who has recently written so well upon splenic surgery, sums up that the results, having regard to the risks, do not entitle us to urge this operation upon patients with any degree of earnestness or conviction. The nature of the haemolysis is obscure: it seems probable that it is an infection; yet this has not been established, hence a truly rational handling is denied us, and the treatment remains empirical, with arsenical preparations as the leading agents. The surgical demands in many cases may be limited to transfusions of small quantities of whole blood at ten-day intervals, but these seem little better than retarding, not curative, measures. Large quantities of ox serum alone, which appears to have the advantage over horse serum that it does not sicken, may be considered in promoting thrombokinase formation.

Whether Dr. Hurst's method of grafting adrenal gland tissue into the groin—or, better, into the testis—will stand the test of time remains to be determined, but already some encouraging results have been reported.

Haemorrhage.

Turning next to the management of haemorrhage in normal blood we know that the sudden loss of a fourth part of our thirteen pounds' weight of blood may be fatal; but if the shedding be spread over a week or more by recurrent bleedings prodigious quantities may be lost with ultimate survival. We have been told that the extreme age of a single red blood cell is about one month. The speed with which these cells can be reproduced after haemorrhage is wonderful.

The two important indications in haemorrhage are: to restore the blood pressure by ingesting or transfusing fluids copiously, thus enabling the heart to supply the vital centres in the encephalon with a sufficient quantity of blood, however thinned in quality; and secondly, to maintain the warmth of the body by internal and external means, the latter indication being often overlooked when the mind is intent upon the former. Isotonic saline, or 6 per cent. gum solution, may be employed intravenously, but in extreme cases pure homologous blood should be used if available, and warm fluids given by the mouth or rectum.

I have not been impressed by the results of subcutaneous injections of salines for this purpose; I have noted them unabsorbed after a week, and have frequently seen disastrous sloughing follow their use. Dr. George Rea has recently simplified the determination of the homology of bloods. As to apparatus, we have our choice of the hydrostatic method; the multiple Record syringe method; and the paraffin-lined Kimpton-Brown tube. The technique is not difficult if care be taken not to introduce air bubbles. The direct method of connecting the artery of a donor to the vein of the patient by a ten-inch transparent tube with suitable nozzles, which Mr. Fullerton distinguished himself by introducing, has been found inconvenient, and in septic states of secondary haemorrhage positively dangerous to the donor. For anyone not fully familiar with the technique the safest plan appears to be the reception of the donor's blood into a warm vessel containing one-fifth part of a 3.8 per cent. sodium citrate solution, and instilling this mixture into the patient's veins by the gravitation or hydrostatic method. We must make sure that diseased blood—syphilitic, tuberculous, or malarial—is not used. In this connexion the interesting fact has been discovered that blood from an asthmatic donor has caused asthma in the recipient. Does this in any way show that we may revise our views of the pathology of asthma, and regard it as belonging to the category of blood diseases?

Thrombosis and Embolism.

Are we to assume that clotting of blood in varicose veins and in haemorrhoids in apparently healthy persons is an inflammatory process? It is very difficult to prove that it is so; certainly an attempt to demonstrate microbic activity in such simple cases usually fails. On the other hand, when definite phlebitis or arteritis exists, we can readily understand

that changes in the intima due to inflammation cause thrombosis.

The anxieties in phlegmasia dolens and in veins that have been operated on in various ways are common enough, but why detachment of portions to form emboli should be more frequent in the post-operative states as compared with phlegmasia is not easy to explain. In the recent debate in the Royal Society of Medicine conflicting views were expressed as to whether pulmonary embolism and infarctions were commoner now than formerly. My own impression is that they are on the increase, but to what change in technique or nursing this is to be attributed is not clear. The more recent deliverances from America are to the effect that the limbs should be permitted free movements, and no splints applied after operations on veins, in order to promote a freer circulation of blood. The practice hitherto has been the opposite—namely, to keep the limbs at rest in splints for a long time in order to give time for condensation of thrombi, lest bodily movements should detach portions of soft clots, with disastrous embolic excursions. Similarly, long rest has been enjoined for phlegmasia. A close observation of a number of cases convinces me that embolism is commoner in the cases treated by early movement and activity, and I still remain an advocate of prolonged rest. Likewise, in the treatment of acute thrombosis in varicose veins without operation prolonged rest is best. We have had in recent years a fair number of cases where men have refused to lie up and rest, and a fatal pulmonary embolism has been apparently caused by their activity; it has occurred, also, after the too early dismissal of hospital patients.

From a medical point of view we may discuss two rival and diametrically opposite therapeutic methods. Should we give calcium salts to condense the clots that may have formed, or should we give citrates to render the blood less liable to clot? As a matter of experience citric acid is better than its citrates for the latter object. My own view is in favour of the citric acid scheme as opposed to the calcium salts as a prophylactic against embolism.

If we apply to the physiologists for the reason why coagulation does not take place spontaneously in the blood vessels we are told that thrombin, the activating substance, does not exist in the blood. It has to be formed by the interaction of prothrombin and antithrombin which do exist. When these combine we get the thrombin that can convert the fibrinogen of the blood into fibrin. What the exact catalytic process is whereby the calcium salts and kinases react to liberate the thrombin is not clear.

The substance known as antithrombin appears to be formed in the liver as one of the secretions of the liver cells, and it is added to the blood as it passes through that organ. Now the fluidity of the blood in the hepatic veins as it leaves the liver is much superior to that in the portal system entering it. To facilitate coagulation all that is wanted to inhibit the restraining influence of this antithrombin is some thrombokinase, such as is liberated at a wound, bruise, or fracture, or even an internal injury to the intima of a vein, a burst valve, or an overstretch. Antithrombin appears to resemble hirudin, an extract from the salivary glands of the leech, or its more accessible and cheaper substitute albumose of peptone. We do not use this albumose of peptone as a therapeutic agent to prevent clotting because it is a powerful and even dangerous depressor of the blood pressure.

When clotting occurs in a vein after operations, two types of clot are recognized—one the firm white clot at the ligature, and the other a soft red colloidal clot, extending up approximately to the nearest tributary or branch. If the white clot disintegrates, it may be comparatively harmless, for it breaks up into almost powdery fragments. It is the soft red clot we have most to dread. To minimize its formation early movements to reduce stagnation after operations are now recommended. But we may lose as much as we gain by this nursing licence, for, as a soft red clot will inevitably form in some segments, we may by movements facilitate its detachment, leading to embolic developments. It therefore seems to me that the elevation of the limbs, and the foot of the bed, combined with somatic rest, is the safer procedure.

Regarding the matter from the clinical standpoint, we may say that in blood conditions in which thrombosis is the leading feature the coagulability of the blood is already too high. Therefore, in a rational treatment in the prevention of thrombosis and embolism, one would argue that we should endeavour to reduce this tendency by citric acid, or its citrates, rather than accentuate it by the exhibition of the calcium salts.

The question of the influence of electricity upon thrombosed veins, whether employed as a preventive agent, or to promote absorption or canalization of clots, is interesting. It is well known that the blood of persons killed by lightning remains for a long time uncoagulated, and this has led to the use of electricity in surgery, either as constant current alone or for the ionization of potassium iodide. We learn from Professor Milroy's researches that other influences, apart from the lightning stroke, may account for the fluidity of the blood. Nevertheless, electric ionization over thrombic areas appears to do good, and to expedite a restoration of the disabled circulation in post-operative conditions. This action, if we admit it, is probably due to a general effect upon the nutrition of the limb as a whole, for we find that the American experience of electrocution of criminals reveals no specific influence upon the coagulability of the blood, either for or against, from electrical currents.

Polycythaemia Vera.

Erythraemia, also called polycythaemia vera, is a rare disease of the plethoric type in which the red cells may rise to double the normal number. This probably depends upon undue activity of the red bone-marrow. Although the spleen is much enlarged, it is a fatal mistake to extirpate the spleen. This organ is not the source of the disease. Rather is it undergoing functional hypertrophy in its efforts to destroy the excess of red blood cells. Forty years ago the spleen was called "the grave of the red blood corpuscles," and in this disease it justifies its old title. Surgery, therefore, directed to the spleen is quite improper. Whether the suggestion of extirpating every alternate rib to reduce the amount of red marrow at work will bring this disease again within the surgical ambit remains to be seen. For the present the best treatment appears to be radium applied to the long bones, or possibly the deep *x*-ray therapy of the Erlangen school may have some advantages to offer in the future.

The influence of repeated small bleedings in reducing the plethora in erythraemia must also be borne in mind.

Splenic Anaemia or Banti's Disease.

This form of anaemia furnishes a sharp contrast to pernicious anaemia in its curability by early splenectomy before cirrhotic changes in the liver become too far advanced. The operation may, however, be a formidable one by reason of the parieto-visceral adhesions which abound, and bleed freely in their separation. Possibly a preliminary application of radium to reduce the size of the spleen may help to reduce this risk.

Spleno-medullary Leukaemia.

This myelogenous form of splenomegaly—what used to be called splenic leucocythaemia—causes the pendulum to swing strongly from surgery to medicine, seeing that splenectomy in this form has so gloomy a record. The very few patients that have survived the operation have not permanently benefited by it; at most a very brief retardation has followed, but not sufficient to justify so serious an operation. It will be best to depend upon radium, or the intensive deep *x*-ray application, when the blood count indicates this particular form of leukaemia. Some remarkably good results have been recorded at the Radium Institute.

Lymphatic Leukaemia.

This is a more rapidly fatal disease than the last-mentioned spleno-medullary form, and offers even less inducement to surgical enterprise; its management also must be left in the hands of the radiologists. In this disease it is not so much the increase in size of the lymph glands that strikes one, but the universality of their distribution, rendering surgical extirpation a hopeless task.

Hodgkin's Disease.

On the other hand, Hodgkin's disease reverses this position, and offers in its earlier stages a field for operative surgery. The extirpation of clusters of glands which are very large, discrete, and not adherent through inflammatory changes is not only feasible but useful. The spleen, which enlarges in the later stages, need not be extirpated. At first there are no striking blood changes: the anaemia occurs later on, so that in the early stages the patients are fit to stand operation better than in the anaemias already discussed. Nevertheless, I believe this disease will pass into the hands

of the radiologists, and that surgery will be less and less enlisted in the future for its treatment. The Radium Institute results in this complaint are very encouraging.

Tonsillar Anaemia.

Considerable difference of opinion still exists as to the wisdom of completely extirpating the tonsils, some claiming that an anaemia results from the removal of these haemopoietic organs. There are therefore advocates of the slicing or guillotine operation as against the thorough enucleation. My own experience leads me to adopt the enucleation plan, as less liable to be followed by recurrence of the hypertrophy. Aside from the primary or recurrent haemorrhage at the time of operation, which may be copious and account for a temporary marked anaemia, I have not seen a chronic anaemia result after enucleation that would deter me from ablating these small haemopoietic glands, which are so often removed with manifest advantage to the patient.

Haemolytic Jaundice.

This is a peculiar acholuric jaundice, which may be either congenital or acquired, and which may last for years; it is a slow blood disease, with marked anaemia from destruction of red blood cells. In this disease splenectomy has a high curative value, and may arrest the disease quite promptly and satisfactorily.

Purpura Haemorrhagica.

In this disease, hitherto regarded as purely medical, the intervention of surgery is justified, and may prove curative. The spleen is distinctly enlarged, and its removal by splenectomy has been followed by the happiest results. The exact nature of the disease is ill-understood, and why there should be a deficiency of the fibrin-forming elements is not explained. Though apparently not primarily a splenic disease, still the extirpation of the spleen is very useful. In some way it breaks a link in the vicious circle that underlies this malady. Hence a fair field for surgery in this blood disease may be predicted.

Skin Grafting.

Brief reference may be made to important discoveries of interest to practical surgeons in respect to skin grafting. It is desirable before taking grafts, even from a mother to her child, to determine whether the bloods of both harmonize or are homologous. When they do not correspond there may be failure in grafting—a point of special importance when the larger flights in plastic surgery are attempted.

Blood-letting.

A word must be said about a practice against which the errors and abuses of former generations have created some prejudice. I refer to blood-letting, either local or general. It is more than possible that we abstain from this too often, and that we should reconsider its value. Anyone who has seen the relief afforded by general blood-letting in the congestion of the lungs in immersion cases, and its recent revival in pneumonia, in apoplexy with high temperature and flushed face, will be willing to admit its potency. Similarly, in chronic kidney inflammation, with uraemia imminent, and in polycythaemia vera, as I have already mentioned.

Artificial Leucocytosis.

The artificial production of leucocytosis has received some attention since Metchnikoff's experiments showed that the resisting power of the peritoneum against the invasions of virulent organisms could be temporarily increased by injections of sterile broths or peptone solutions. This might be utilized in cases where the surgeon dreaded the onset of sepsis in abdominal operations. The same principle has recently been advocated in the treatment of influenza by the injection into the blood of substances capable of producing a general leucocytosis—for example, nucleinic acid or sodium cinnamate—and favourable results have been claimed for this practice.

In passing these various diseases in review it will be apparent that the account of them is necessarily incomplete and discursive. What will emerge, I think, is this, that surgeons in the future will have to be more thorough physicians and physiologists in order to guard themselves against rash or precipitate extirpations of organs which may be temporarily enlarged and apparently inconvenient burdens. These may not be the seat of the disease, though they may constitute its most conspicuous feature. The enlargement may actually be salutary—of the nature of a functional hypertrophy to protect the patient—as in polycythaemia.

On the other hand, the physicians should see to it that surgical aid should be sought as early as possible after a diagnosis has been made of one of these maladies in which splenic or glandular extirpation has proved of service. In a word, is it not clear that any sharp cleavage between these sister sciences, to which a premature and exclusive specialism is prone, is as unphilosophic as it is unscientific? We should, therefore, condemn an unnatural divorce of surgery and medicine, though both branches must gratefully recognize that only by specialized "team work" in many cases can the necessary diagnosis be laboriously built up.

THE TREATMENT OF INSOMNIA.*

BY

ROBERT DAWSON RUDOLF, M.D.,

PROFESSOR OF THERAPEUTICS IN THE UNIVERSITY OF TORONTO.

THE treatment of cases of insomnia is a very large subject, and here only an outline can be given, founded on an attempt to classify the different forms of the affection under two great heads.

Physiologists cannot tell us exactly what sleep is, and it would serve no useful purpose to enunciate here the different theories—or shall I say hypotheses?—that have been advanced as to its nature. A common belief is that the lowering of blood pressure that undoubtedly occurs during sleep is the cause; but if this were so one should find intense drowsiness in cases of low blood pressure, but this is not usual. Sleeplessness is not a symptom of severe haemorrhage, and, on the other hand, I understand that in mania the blood pressure tends to be low. Again, chloralose is a good hypnotic, and yet it raises the blood pressure. A fall in blood pressure is a usual accompaniment, but probably not the cause of sleep.

Sleep and sleeplessness are associated with decrease or increase respectively in the activity of the cells of the central nervous system, and the cause of this decrease or increase is not always the same. Sleeplessness, indeed, is a symptom and not an entity. One might just as well speak of one kind of cough or one kind of pain as of one kind of insomnia. We see it occur in arterio-sclerosis when the arterial blood pressure may be high, and again in anaemia when it is probably low. Usually a cup of coffee will lead to sleeplessness, but I have known people in whom it has the opposite effect. Evidently the essential cause of the symptom is not the same in the two classes.

Sleeplessness is perhaps the most distressing symptom to which human flesh is heir. Every practitioner knows how it wears out his patients and how a few hours of sleep may alter the whole aspect of a case. Sleep is more essential to life than food, in that an animal may go for weeks without eating, but let it be deprived of sleep for four or five days and life becomes impossible. A form of torture said to have been popular in old days was to deprive the victim of sleep, and it must have ranked high as a producer of exquisite suffering, which was the object of the torment. Our patients sometimes undergo this torture, unless we lessen it by therapeutic means.

As sleep is so essential, it follows that absolute insomnia for any length of time is incompatible with life, and yet often one is told by healthy-looking individuals that they have not closed an eye for weeks. I saw an example of this only the other day. A short period of sleeplessness is, strange to say, productive of an increase in weight of the body, but if the insomnia be persistent a loss of weight ensues, and the degree of emaciation is often an index of some value in estimating the amount of insomnia.

A great many classifications have been made of the different forms of insomnia. Perhaps the one most quoted is that of Germain Sée, which is as follows:

1. Dolorous.
2. Digestive.
3. Cardiac and dyspnoeal.
4. Cerebro-spinal and neurotic.
5. Psychic.
6. Insomnia due to physical fatigue.
7. Genito-urinary.
8. Febrile and auto-toxic.
9. Toxic.

* Communicated to a meeting of the Ontario Neuro-Psychiatric Association, September, 1921.

These nine classes are nine pigeon-holes in which we may put most cases of insomnia, but beyond that they are not of much value, as they are not founded upon any fundamental basis of classification.

Whatever be the ultimate nature of sleep, it appears to me that it depends upon two essential factors, and an increase in either, and especially in both, of these will prevent its occurrence. These two factors are:

1. The degree of irritability of the central nervous system.
2. The amount of afferent impulses reaching the central nervous system.

Table of Causes of Insomnia.

I. Nervous system hypersensitive, owing to—
   (*a*) Inheritance, bad habit, alteration in habits.
   (*b*) Fatigue or neurasthenia.
   (*c*) Circulatory disturbances, especially arterio-sclerosis and aortic regurgitation.
   (*d*) Exciting toxins produced in the alimentary tract or in the body tissues, or introduced from without.

II. Increase in afferent impulses, as from noise, light, heat, or cold, mental or physical discomfort or pain.

If the irritability of the nerve cells be not abnormal, and if no excessive storm of afferent impulses arrive, then at rhythmic intervals unconsciousness steals over the brain and the individual sleeps, and during that sleep many biochemical changes take place which eventually cause him to awaken with powers renewed for the carrying on of the functions of active life. But let the central nervous system be too irritable from any cause, then, although only the normal amount of afferent stimuli be arriving, these will prove sufficient to prevent sleep; and it is well to remember here that although we may check all evident afferent stimuli, such as light, noise, pain, and so on, during all of life there occurs a constant flow of afferent impulses, which do not normally reach to the level of our consciousness and yet must have a stimulating effect upon the central structures, especially when the excitability of these is raised from any cause. On the other hand, if the degree of irritability of the central nervous system be normal, let the amount of afferent impulses be only sufficient and sleep will be impossible. The most healthy man will be kept awake by an aching tooth or by sufficiently worrying thoughts.

It is easy to put most cases of sleeplessness into one of these two classes, although often a cause may act in both, as when indigestion reflexly causes distress and also increases the irritability by the production of toxins. Looking at Sée's nine classes it is evident that dolorous, genito-urinary, and psychic cases come into our second group, in that they act by increasing afferent impulses; while those cases labelled cardiac and dyspnoeal, cerebro-spinal and neurotic, fatigue, febrile and auto-toxic, and toxic, act by increasing the irritability of the central cells and hence come in the first group; and lastly, the digestive (and possibly many of the cardiac and dyspnoeal) act in both ways, and hence belong to both classes.

It is manifest that in many patients we are dealing with several causes of sleeplessness, as when we meet with a chronic renal patient who has business worries and who has been imbibing in order to keep himself up to the mark. He has an increased irritability of the central nerve cells due to the toxaemias from the nephritis and the alcohol, and he also has the increase in afferent impulses from the worrying thoughts. An irritable nervous system is being overstimulated, and of course he cannot sleep.

As regards treatment, an appreciation of the above grouping of the different causes of sleeplessness makes the problem, to me at least, a little less complex.

Although we do not know the essential nature of sleep we do know a great deal about the factors that will favour its occurrence, and, on the other hand, those that act in the opposite direction. By encouraging the former and decreasing the latter as far as possible we can usually, more or less, restore the deranged function.

Speaking generally, in every case we should reduce the flow of afferent impulses to as few as we can, and hence the patient must be placed where light, noise, heat, and cold do not disturb him. Many a sufferer is kept awake by cold feet or other result of an unequalized circulation. Noise keeps most people awake, and yet monotonous noise (like that of the engines of a steamer) may have a soothing effect, and sleeping passengers are usually wakened if the ship stops. Monotonous sound, especially if pleasant and rhythmic, is calming, and hence the value of music in helping the sleepless.

When the afferent impulses are of the nature of pain or discomfort, then we strive to remove the cause of them; but if this be impossible and the centres continue to be stormed by such, then nothing will make these less sensitive to them than opium or its derivatives. But opium is a very edged tool in insomnia, unless this be dependent upon some disturbing condition which is likely to be of short duration, and it has no place in the treatment of chronic insomnia.

If the environment is made conducive to sleep and yet this is wooed in vain, then the central nerve cells are too irritable, and the cause of this irritability must be sought for and if possible removed. Going through our list it is evident that this can often be done. We cannot influence inheritance, but can bad habits, such as the reading of exciting books or indulging in exciting thoughts at night.

When a person is too tired to sleep, a stimulant such as tea or coffee, or even a glass of toddy, may make all the difference. Circulatory disturbances may frequently be treated successfully, as when we use digitalis in cases of auricular fibrillation, and the sleeplessness is thus etiologically treated. In less evident circulatory abnormalities hydropathy is of special value and should always be tried. If the feet are cold a hot bottle may help, or a hot, or even a cold, foot-bath followed by friction may be effectual. A complete warm bath is often valuable, and in very excited cases this may be continued for hours and the patient thus soothed to sleep. I have seen this apparently save life in chorea. Or we may use the wet pack, in which the patient is enveloped in a wet sheet for half an hour and then rubbed dry with a rough towel. The water may be warm, tepid, or cold. Occasionally gentle massage is of value in inducing sleep.

All these physical methods probably act by influencing the circulation. In toxaemia from infections or metabolic changes treatment can often do much; in that due to toxins introduced from without, especially the purin bodies, alcohol and tobacco, the remedy is in our hands.

But in many cases, after all possible afferent stimuli have been checked and all possible causes of irritability of the central cells have been removed, still too much excitement remains, and then, and only then, is it our duty to try and directly lessen this excitement by medicinal means.

Hypnotics should be avoided as much as possible, especially in chronic cases of insomnia, and never used until every other method has been tried. The two bogies that haunt us here are (1) habit formation, and (2) gradual loss of effect, so that the dose of the drug must be constantly increased. But sometimes sleep-producing drugs are necessary, it being wise "to do little wrong to do a great right."

Every practitioner has his favourites here, and I will not weary you with any discussion of hypnotics in general, but will merely say that they should be used as seldom as possible, and in as small doses as will act. They all bring about sleep by dulling the excitability of the nerve centres.

When a hypnotic appears to be required it is wise to begin with the mildest, and here one can put the bromides. They can be given either at bedtime in a single dose of from 30 to 60 grains, or in several doses during the day. It makes little difference what form of bromide is employed. Sometimes a combination of several is preferred.

Next in order may come chloralamide, now official in the B.P. as *Chloral Formamidum*, in doses of 20 to 30 grains, given in solution flavoured with liquorice. Then veronal (dose 5 to 10 grains), and the action of this drug can be enhanced by the addition of an equal amount of aspirin (say 5 grains of each). Then the sulphones, sulphonal and trional, in doses of 10 to 25 grains; and lastly, chloral hydrate, in doses of 10 to 20 grains, repeated. Chloral is rapidly eliminated, and it is better to give it in repeated doses than in one large one, for some people are very susceptible to it, and cases are on record where 30 grains have proved fatal. Often a combination of several hypnotics acts better than a large dose of one. In excited cases paraldehyde in doses of one-half to one drachm is valuable, or we can use hyoscine hypodermically, although occasionally this increases rather than decreases the excitement. An ordinary dose of it hypodermically is 1/150 grain.

Opium should never be used in chronic insomnia, although, as already said, in acute disease, as pneumonia, it is often invaluable.

Some have used hypnotism in producing sleep, but of it I have no personal experience, and in the few cases in which I have seen it tried I have not been much impressed with its value.

SUMMARY.

1. All cases of insomnia may be classified as being produced either by an increase in the excitability of the nerve centres, or from an increase in the afferent stimuli reaching those centres, or by both.

2. In every case the afferent stimuli should be reduced as much as possible, and to this end, after the environment has been made as appropriate as practicable, physical therapy, especially hydrotherapy, should be employed.

3. If the excitement of the cerebral centres remain too great, then this may have to be reduced by the employment of hypnotics, and here the mildest should first be used.

4. Opium and its derivatives should never be employed in the treatment of chronic insomnia, or in that dependent upon abnormal mental states.

RICKETS: A THEORY OF THE METABOLIC DISTURBANCES AND OF ITS ASSOCIATION WITH TETANY.

BY

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Introduction.

ANY explanation of the etiology and pathology of rickets must take cognizance of the fact that it is not merely a bone disease, but that the symptoms show that there is a profound and general disturbance of the metabolism. The sweating, the muscular weakness, and the close association with the spasmophilic condition all point in this direction. Miss Ferguson[1] found that 43 per cent. of the markedly rachitic and 41 per cent. of the slightly rachitic children examined by her in Glasgow had, or had had, tetany. The slight degenerative change in the muscles, first described by Bing in 1907 and again by Banu[2] in 1921, with the altered chronaxie recorded by Bourguignon and Banu,[3] and the decrease in the creatin content found by Pearl Henderson,[4] indicate that muscle is implicated as well as bone.

Although the causal factors in the production of the disease are still quite obscure in spite of the immense amount of work which has been done upon the subject, the course of metabolism is beginning to be somewhat better understood. Probably nothing has done more to delay progress than the general acceptance of the belief that a defective supply of calcium to the bones is the basal factor, and the failure to recognize that the decreased ossification may be due to a limitation in the supply in proper form of some other element in bone. While calcium constitutes some 50 per cent. of dried dense bone, phosphoric acid (P_2O_5) constitutes about 40 per cent.

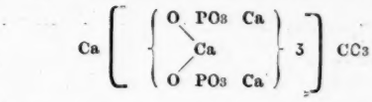
Phosphoric Acid as the Possible Limiting Factor in Ossification in Rickets.

Recent work is pointing more and more to the primary involvement of phosphorus rather than calcium in the perverted metabolism of rickets.

Howland and Marriot[5] have published a large series of observations on the calcium content of the serum of the blood in rachitic and non-rachitic children showing no marked decrease in the calcium, and more recently Howland and Kramer[6] give a parallel series showing a marked decrease in the inorganic phosphates. The analyses of Findlay, Noël Paton, and Sharpe[7] had shown no decrease in the calcium content of the whole blood of rachitic pups, and a series of metabolic studies upon children led them to conclude that the evidence does not point to a primary implication of the metabolism of calcium. The recent work of McCollum and others[8] shows that a limitation of the phosphates of the food in proportion to the calcium, especially when accompanied by a limitation in the fat-soluble A accessory factor, produces in rats a condition of the bones resembling that in rickets. Some unpublished metabolic studies by Telfer also afford an indication that in rickets there is a decrease in the proportion of the retention of phosphorus to the retention of calcium, as had long ago been maintained by Schabad.[9]

The evidence thus tends to indicate that failure in the supply of phosphoric acid, or its supply in unsuitable forms, may be the limiting factor in the ossification in rickets, and this suggests a possible disturbance in the metabolism which may explain not only the bone changes in rickets but also its association with tetany. This I propose to discuss.

It was formerly supposed that the inorganic matter of bone is composed of some 87 or 88 per cent. of calcium phosphate, with some 10 or 11 per cent. of calcium carbonate, but it is now recognized that the calcic phosphate and carbonate probably occur in a more complex combination, which Gassman[10] considers may be represented by the formula:



The Carriage of Calcium in the Blood.

The very generally accepted theory that the bone salts are carried in the blood in the form in which they are deposited seems to be based upon the older analysis of the relative amounts of calcium and of phosphoric acid in the blood. Since the transference must occur through the plasma, it is the proportion of the two constituents present in this which requires consideration.

The amount of CaO is about 14 mg. per 100 c.cm. plasma. The amount of inorganic P_2O_5 is about 7.2 (Bloor). Hence the amount of calcium is in excess of that which could be carried as $Ca_3(PO_4)_2$, even if none of the inorganic phosphoric acid were combined with sodium and other bases. It has long been found difficult to explain the solution of the calcium in the plasma if it is present as a phosphate, and Hofmeister[11] speculates upon the way in which it is held. He considers that it is greater in amount than can exist in simple solution. He discusses the various possibilities, and comes to the conclusion that the colloidal condition of the blood plasma, with its high protein content, renders possible the transport of phosphates, calcium soaps, and lipoids, themselves insoluble in water, in the form of colloidal suspension.

Wells[12] lays stress on the probable action by CO_2 in dissolving lime salts and retaining them in solution, and refers to the work of Barillé, who concludes that calcium is carried in the blood in a definite compound, a "carbon-phosphate" of calcium,

$$P_2O_8Ca_2{\cdot}I_2: 2\,CO_2(CO_3H)_2Ca,$$

which, on evaporation to dryness, yields about 77 per cent. of $CaHPO_4$, and about 23 per cent. of $CaCO_3$. In an alkaline medium Ca_3PO_4 is formed. Wells points out that 77 parts of the di-calcium phosphate would yield 87.7 parts of tri-calcium phosphate, which is the proportion in bone. Howland and Kramer elaborate this explanation, and point out that "a decrease of the phosphorus (HPO_4) ion would render more difficult the precipitation of tertiary calcium phosphate."

On the other hand, Rona and Takahashi[13] found that some 20 to 30 per cent. of the calcium of the serum was not diffusible, and MacCallum, Lambert, and Vogel[14] were unable to dialyse all the calcium out of the plasma. Cushny[15] finds that while all the inorganic phosphoric acid may be filtered through a collodion filter, at least one-third of the calcium is retained. Von Meysenburg, Pappenheimer, Zucher, and Murray[16] found that 60 to 70 per cent. of the calcium of serum is diffusible. These facts strongly suggest that the calcium is not all combined with phosphoric acid as assumed by Hofmeister, but that it is in some other combination. Vines[17] gives some evidence that part of the calcium of the blood exists in the ionized and part in the non-ionized condition.

The interesting observations of Paul and Sharpe[18] on the transport of calcium in the blood of the crab, from the liver to the shell, in combination with lower fatty acids, suggests the possibility of its being linked in the blood of mammals to some other substance than phosphoric acid.

Again, the fact that the lime for the bones of the chick comes from the calcium carbonate of the shell of the egg, while the phosphorus for the phosphoric acid comes from the lecithin of the yolk (Plimmer and Scott),[19] suggests that a combination is not formed till the bone is reached. Haines[20] describes the abundance of phosphorized fats in the liver of the chick in the form of isotropic globules during the first two weeks, and finds that during the third week anisotropic globules of cholesterol esters of fatty acids take their place. He suggests that a break-up of the lecithin complex and a recombination of the fatty acids occurs, and that the glycerophosphoric acid, or some other compound, passes on to take part in ossification, while cholesterol takes the place of glycerol in ester combinations with the fatty acids.

Further, the fact that the subcutaneous or intraperitoneal injection of almost any soluble lime salt leads to patches of

calcification in adjacent tissue in which the proportion of calcium to phosphoric acid is the same as in bone seems to indicate a combination of lime and phosphoric acid *in situ*.

In pathological calcification, for example, atheroma, the same proportion exists as in bone, but in the early stages there is a considerable amount of lecithin with cholesterol and fatty acids, and these decrease as the calcification advances, indicating that the phosphoric acid is derived from the lecithin.

The Carriage of Phosphorus in the Blood.

As is well known, the phosphorus of the blood is carried in three definitely distinct compounds: (1) Phospholipin, (2) inorganic phosphorus, (3) nucleic acid. That other combinations exist is indicated by Bloor's[21] figures. His investigations show that the proportion of the various compounds is more fixed in the corpuscles and that there is a relatively great excess of all these combinations in the corpuscles as compared with the plasma, the distribution of the phosphorus thus being the reverse of that of calcium. The total phosphorus is five to seven times, the lipoid phosphorus two to three times, and the inorganic twice as abundant, while an unknown organic compound or compounds is fifty to a hundred times more abundant in the corpuscles than in the plasma. Both in the corpuscles and in the plasma the lipoid phosphorus is two to three times as abundant as the inorganic. It is this constituent of the corpuscles which varies. It increases during the absorption of fat, and the possibility is considered that the phosphorus in the unknown compounds may be synthesized with fat in the formation of lecithin. Bloor suggests that the phospholipoids of the plasma may be derived from the breaking down of the corpuscles. He points out that, unless the unknown phosphorus compound can take some part in the exchanges, the small amounts of inorganic phosphates in the corpuscles and in the plasma can play only a small part in acting as a buffer substance. The later analyses of the blood in children by McKellip, de Young, and Bloor[22] show comparatively small differences.

Jones and Nye[23] give somewhat similar results, and Bloor's observations are confirmed by the work of Greenwald[24] and of Abderhalden.[25] Meigs, Blatherwick, and Cary[26] give a long series of analyses of the serum of the cow, showing that the variations are considerable, but that generally the lipoid phosphorus is in excess of the inorganic. They advance experimental evidence to show that the blood of the udder vein of milking cows contains less phospholipin and more inorganic phosphorus than the arterial blood, and they regard the inorganic phosphates as products of excretion.

The existence of the exchanges of phosphoric acid between corpuscles and plasma somewhat diminished the value of Howland and Kramer's observation that the phosphoric acid of the serum is decreased in rickets, although it may be argued that the serum in rachitic and non-rachitic children was analysed under similar conditions, and that therefore the extent of the interchange was in both cases the same.

Lecithin and Bone Formation.

Lecithin is probably the most abundant phospholipin in the body. Its composition may be indicated as follows:

Glycerol { Fatty acid radicle
" " "
Phosphoric acid—Cholin.

Little is known about the normal metabolism of lecithin in the body. There is satisfactory evidence that it can be formed by the combination of fats, cholin, and inorganic phosphates. This was shown by me to be the case in development of the lecithin of the eggs of the salmon from the water-soluble phosphoric acid of the muscles and by McCollum, Halpin, and Drescher,[27] and Fingerling,[28] in the formation of lecithin in the eggs of hens and ducks from the inorganic phosphorus of the food. In the chick and in the salmon the phosphates for the bones come from the lecithin of the yolk of the egg, and the constant large amount of lecithin found in the liver during starvation[29] suggests that it is in this combination that the phosphorus of wasting tissues is fixed for further use in the body.

The close connexion of the phospholipins with bone formation seems to be indicated by the presence of lecithin before calcification in such pathological changes as atheroma and by the higher proportion of lecithin in the bone marrow of young than of old animals (Gliken,[30] Bolle,[31] Nerking,[32] and others).

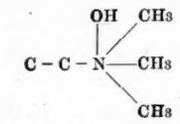
A consideration of these results seems to point to:

1. The independent carriage of at least part of the calcium and of the phosphorus in the blood to the growing bone and to their combination *in situ*.
2. A limitation in the supply of phosphorus or of phosphoric acid, or a supply in unsuitable form, as the primary disturbance in the metabolism in rickets.
3. The important part played by the phospholipin, especially of lecithin, in the metabolism of phosphorus in the body on its way to the formation of the calcium phosphate in bone.

The possibility is suggested that some modification in the normal metabolism of lecithin may be the essential disturbance in rickets—a disturbance leading to the transference of phosphoric acid to bone in an unsuitable form and to a concomitant change in the metabolism of cholin.

The Metabolism of Cholin and its Significance.

The significance of the cholin part of the lecithin molecule has never been adequately considered by physiologists. It is an ammonia base—

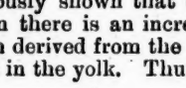


Ethanol tri-methyl ammonium hydroxide.

That it is a substance of considerable physiological activity has long been known. Hunt and Taveau[33] and Dale[34] have shown that acetyl-cholin is about 100,000 times as active as cholin, and Magnus[35] has given evidence that acetylation may occur in the body.

Cholin seems to be excreted from the body only in small quantities (Guggenheim and Loeffler[36]). Its probable fate has been studied by Reisser,[37] who demonstrated an increase in the methyl-guanidin-acetic acid (creatin) in the muscles of rabbits after injection of cholin. Bauman, Hines, and Marker[38] perfused cholin in the dog and got an increase in the creatin of the muscles. These observations have been repeated and confirmed in this laboratory by Shanks.[39] The toxicity of cholin limited the dose which could be given intravenously, and the experiments lasted at most for three hours. The increase of creatin was not constant, but was in many cases distinct, and the average increase fairly corresponded to the increase to be expected upon Reisser's theory.

Burns[40] had previously shown that during the incubation of the egg of the hen there is an increase in the guanidin, which may have been derived from the cholin of the lecithin, which is so abundant in the yolk. Thus methyl guanidin,



must be considered as a probable product of the metabolism of cholin.

It is unfortunate that the estimation of methyl guanidin involves a long and complex chemical process. On the other hand, when linked to acetic acid as creatin, it is readily determined by converting it to creatinin and applying Folin's colorimetric test.

Noël Paton, Findlay, and others have shown that methyl-guanidin produces the same symptom as those of tetania parathyreopriva.[41] It increases the spastic tone of muscles and may produce jerkings and tremors. Burns and Sharpe[41] have demonstrated that the amount is markedly increased in the blood and urine of dogs after removal of the parathyreoids and in the urine of cases of adult tetany and of the idiopathic tetany of children so closely associated with rickets.

The formation of an excess of methyl guanidin in this way from cholin liberated in the metabolism of lecithin would account for the frequent association of tetany with rickets, especially if there were any interference with its linkage with acetic acid to form the innocuous creatin.

The fate of methyl guanidin in the body is not fully known, but probably it is not all excreted as such. This suggests that it may first be linked to acetic acid to form creatin, which is an inert substance, and that thus the active guanidin may be detoxicated. The curious relationship of the creatin of muscle to its state of tonus (Pekelharing) may be due to its formation from methyl guanidin which has so marked an effect on muscular tone. Evidence of this formation has been afforded by Wishart,[42] who found that the creatin of the muscles is increased after intravenous injection of guanidin salts.

Conclusion.

The consideration of the evidence suggests that an error in the metabolism of lecithin, probably in the liver, may be a causal factor in the failure of bone formation in rickets, and that this faulty metabolism may in some cases be accompanied by an increased conversion of cholin into guanidin compounds, thus explaining the association of tetany with rickets.

The theory is put forward tentatively in the hope that it may indicate lines for further work upon the nature of the disturbance in rickets.

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AMPUTATIONS AT THE SHOULDER AND AT THE HIP.*

BY

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TEN years ago, when I was President of the Leeds and West Riding Medico-Chirurgical Society, I described two new major surgical operations in my presidential address. They were: (1) interscapulo-thoracic amputation, and (2) supra-trochanteric amputation of the femur as a substitute in some cases for amputation at the hip-joint.

My friend and colleague Mr. Lawford Knaggs had already published a short account of the former (*Lancet*, May 7th, 1910), as he was afraid I might delay the publication of the new method and so not get the full credit for my work. It is from his short description that the details of the operation have found their way into the English and American textbooks. The only note of the second operation is in the short report of my presidential address, which appeared in the BRITISH MEDICAL JOURNAL, November 4th, 1911.

I had intended to describe these operations with fuller details, and to illustrate the description by the excellent drawings made for me by Miss E. Wright of Leeds, but I delayed doing this, and then mislaid the typescript and the illustrations; they only turned up a few weeks ago. I have lately received letters asking me where my original communications can be found, and am therefore encouraged to believe that the operations are considered to be of some value; this has decided me to place them on record, with fuller details than have yet been published.

I. INTERSCAPULO-THORACIC AMPUTATION.

The operation may be required for trauma and some cases of malignant growth of the upper end of the humerus or scapula. Some have advocated it for malignant disease of the breast and for extensive tuberculous disease. Professor Berger's name is associated with the usual methods of performing the interscapulo-thoracic amputation. His paper, entitled "L'Amputation du membre supérieur dans la contiguité du tronc," was published in Paris in 1887. Sir Frederick Treves, Mr. Stanley Boyd, and Mr. (now Sir Gilbert) Barling in this country, and Professor Keen and Dr. La Conte in America, have made valuable suggestions.

Professor Berger was not the first surgeon to perform interscapulo-thoracic amputation, and to speak of the operation I have devised as a modification of Professor Berger's method is not correct. I do not know who was the first to perform the operation, but I remember seeing the late Mr. Christopher Heath remove the forequarter in 1882.

I submit that the operation I perform differs entirely in principle from Professor Berger's; in fact, it has nothing in common with it except the final result—that is, the forequarter is removed. The chief principle in Berger's operation is the ligature of the subclavian vessels as a preliminary step in the amputation; by my method the vessels are secured during the course of the operation. I have only once performed Berger's operation, but I have seen it done two or three times and noticed the difficulties the surgeons experienced in exposing and ligaturing the subclavian vessels; the whole operation took one and a half to two hours. It has sometimes to be done in two stages. I have performed my operation in twenty-five minutes, including the suturing of the flaps. The ease with which the operation can be performed reduces the time and so must be an important factor in the success of these cases.

When the second case presented itself I carefully read up the whole subject again, and, when thinking it over, it struck me that there might be a better way of removing the forequarter than that usually practised. I remembered when I was reading for the first examination for the diploma of F.R.C.S. that I attended a class of special dissections conducted by Professor (now Sir George Dancer) Thane at University College, London. One of the dissections was of the brachial plexus from behind. I think we tried two or three different ways; one was to turn a flap back over the scapula and to divide all the muscles attaching the vertebral border of the scapula to the spine, and I remembered that when this was done the brachial plexus could easily be seen with the subclavian vessels. It then struck me that this would be a much easier way of doing the operation. So I planned it out on these lines and was delighted with the comparative ease with which it could be performed.

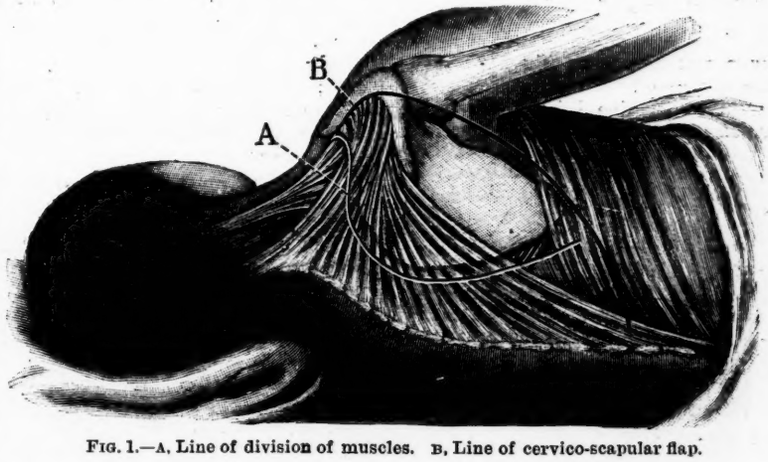

FIG. 1.—A, Line of division of muscles. B, Line of cervico-scapular flap.

Description of the Operation.

The flaps, of course, may vary according to the exact position of the disease; there are two flaps, a cervico-scapular and a pectoro-axillary.

The patient is placed on the sound side close to the edge of the operating table. A cervico-scapular flap is made, commencing at the clavicle near the outer margin of the sternomastoid attachment, carried along the clavicle over the prominence of the shoulder along the axillary border of the scapula to a point below the angle and backwards to about two inches from the spine (Fig. 1). A flap of skin and subcutaneous tissue is rapidly turned back; this exposes the posterior surface of the scapula, with the muscles attaching it to the spine.

The trapezius and the latissimus dorsi are then divided, next the levator anguli scapulae, the rhomboids, and, lastly, the scapular attachment of the serratus magnus and the omohyoid muscles. Three or four vessels may require ligature, branches of the suprascapular and posterior scapular arteries. The soft tissues are now separated from the clavicle, close to the sternomastoid attachment, and the bone surrounded by a Gigli's saw and divided; the subclavius can now be divided.

The whole upper extremity now falls away from the trunk,

* This paper reached us a few days before Mr. Littlewood's lamented death on December 19th, 1921.

held by the subclavian vessels and the cords of the brachial plexus, which are fully on the stretch, standing out and easily seen (Fig. 2).

The cords of the brachial plexus are now divided with a pair of scissors close to the spine; an injection of cocaine into the nerve can be given before division, as has been recommended, to lessen the shock. In my three cases I have not noticed any increase of shock in division of the nerves. I have not injected cocaine.

Clips are applied to the subclavian artery, which is divided between them; the vein is then seen and treated in the same way. The advantages of securing the artery first have been pointed out by many operators, and in this operation it is the easiest plan. The vessels can now be ligatured, or this can be done after the parts have been removed. The anterior or pectoro-axillary flap is now cut and reflected as far forwards as necessary.

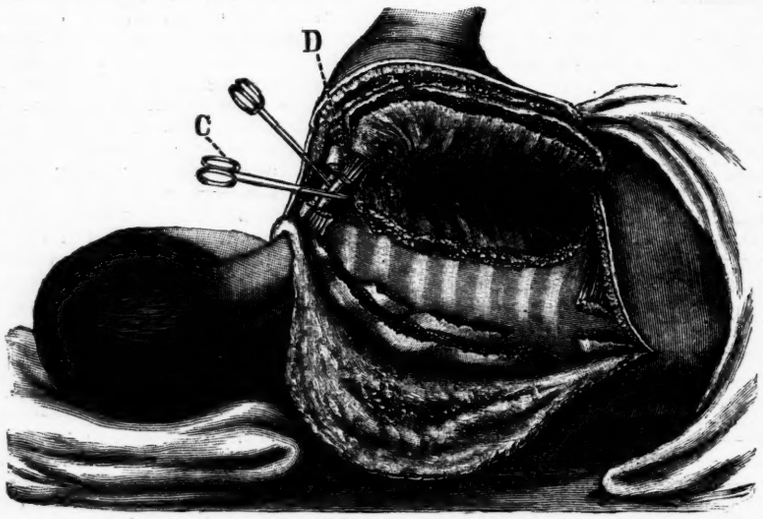

FIG. 2.—C, Forceps on subclavian muscles. D, Brachial plexus diverted.

The last stages in the operation consist in the division of the pectoralis major and minor muscles; the position of the division depends on the extent of the muscles it may be thought necessary to remove.

After the division of these muscles the forequarter is removed. This exposes the thoracic boundaries of the axilla and the posterior triangle, so that it is now quite easy to remove any lymphatic glands which require removal (Fig. 3).

The flaps are now sutured and a firm dressing applied. I have recently used silkworm gut prepared with iodine for suturing.

II. AMPUTATION NEAR THE HIP-JOINT (SUPRA-TROCHANTERIC).

The other operation I wish to describe I have called the supratrochanteric amputation of the femur, and I suggest it should be performed in some cases as a substitute for amputation at the hip-joint. I have performed it several times, on the first occasion in 1897.

Amputations at the hip-joint are either done for trauma or for malignant disease of the femur, generally at the lower end, and also for tuberculous disease. The operation here described could not be done for the latter condition, as the disease is in the joint itself.

In cases of sarcoma of the lower end of the femur it is generally taught that the whole bone must be removed. It is unfortunately a very serious disease; in the majority of cases death occurs from secondary deposits in internal organs in eighteen months to two years after the onset; often at a much earlier date. In one of my cases the patient lived five years.

The disease, however, has not in my cases recurred in the stump; the recurrence has generally been in the internal organs, mostly the lung, and in one case I know the death was certified as "tuberculous disease of the lung." I found out that the patient had had several attacks of haemoptysis, due, I have no doubt, to a secondary growth.

I do not believe there is any fear of the growth recurring in the portion of the bone—just the head and neck of the femur—that is left in the supratrochanteric operation. Now the object of my operation is to leave the hip-joint intact, and I submit there is less shock at the time of the operation, and the stump is more useful.

Description of the Operation.

The patient is brought to the edge of the operating table, resting on the sound side.

An antero-internal flap is first cut beginning just below the anterior superior spine, coming down to a level to secure an adequate covering—that is, to one-third of the circumference of the hip-joint—then over the front of the thigh, and upwards on the inner and posterior aspect to a point near the ischial tuberosity; a postero-external flap is now cut. Any flaps that are used for an amputation at the hip-joint would be suitable for this operation. I always think the Furneaux Jordan flap is far too long and bulky, but his principle of keeping the incision away from the perineum should be followed whatever flaps are made.

The inner flap, consisting of skin and subcutaneous tissue, is now turned up about a couple of inches, the femoral vessels are exposed, clipped with forceps, severed, and ligatured. The muscles are next divided and separated as high as the neck of the femur; the ilio-psoas is the last divided. The branches of the profunda artery are caught in clips, divided and secured by ligatures; with a good assistant the loss of blood is small. The muscles in the outer flap are now divided and separated from the bone, those attached to the great trochanter being severed last. The sciatic nerve is divided after forming this flap. The flaps are held on one side; this exposes the neck of the femur.

The anterior part of the capsule of the hip-joint is attached to the anterior intertrochanteric line, and without opening the hip-joint this must be separated from the neck of the femur upwards for about half an inch by means of a raspatory; the neck of the femur is surrounded by a Gigli's saw and the bone sawn through close to the trochanter; the limb is removed, leaving, as will be seen, the hip-joint intact.

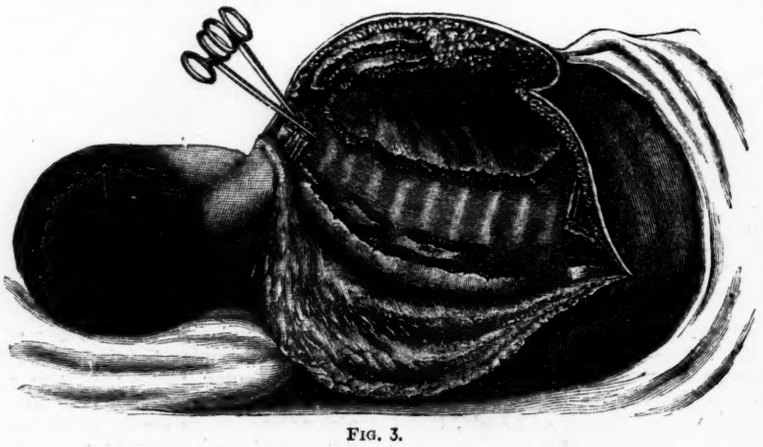

FIG. 3.

The muscles can be brought together with deep sutures and the skin secured with silkworm gut. The stump can be drained if it is thought desirable.

All will agree that it is right to amputate for trauma. Operations for malignant disease are open to criticism. My own feeling is that it is the right thing to do; the fact that one case lived five years is encouraging. Perhaps an earlier diagnosis will give us better results; so often do we wait to see whether the condition is inflammatory, when an exploratory incision would clear up the doubt. During recent years I have explored four cases of enlargements about the lower end of the femur, thinking they might be sarcomatous, and have found them to be due to traumatic periostitis, accompanied by some myositis ossificans. In addition to clearing up the doubt it is good treatment for these conditions, so there is really no reason to delay the exploration, and much time

is gained if, unfortunately, they should turn out to be sarcomatous.

It must be remembered that scurvy rickets, the result of improper feeding of children, may produce swellings of the lower end of the femur simulating sarcoma.

In my earlier cases I tried to arrest the haemorrhage by means of one of the many methods recommended for amputation at the hip-joint—the names of their originators are not quite legion: Lister, Macewen, Jordan Lloyd, McBurnie, Wyeth, Davies, Lever, and a host of others—the supposed value of these I have delighted to explain to students. They are mainly methods by the use of tourniquets, which are often unsatisfactory; in amputation at the hip-joint some of them may slip over the stump before the vessels have been secured.

I have long given up the use of tourniquets in cases of excisions, as I found that the oozing and bleeding afterwards was considerably less when the tourniquet was not used; in amputations where there is marked arterial disease, and in amputations for gangrene, a tourniquet may do a great deal of damage to the tissues and so favour sloughing of the flaps.

The method for the arrest of haemorrhage used in these cases carries out the same principle as I adopted in the interscapulo-thoracic amputation—that is to say, no preliminary attempt is made to control the bleeding, but the main vessels are exposed during the ordinary course of the operation, clipped with forceps, divided, and ligatured.

In ordinary amputations I had never tried this method, until Mr. J. A. Coupland, who was helping me with a supra-trochanteric amputation of the femur, suggested that I should expose and secure the femoral vessels at the point of division in forming my flap. I was a little bit afraid at first of not using some form of tourniquet as a first line of defence against haemorrhage, but was very pleased with the result. It answered admirably, the patient only losing a small quantity of blood. I think this principle should be applied to all amputations. It is not a great deal to expect of any operating surgeon that he should remember the anatomy of the main vessels. If this method is thought worthy of following, then the tourniquet will only be used for first aid.

This method has now been practised and advocated for some time by a certain number of surgeons. I believe, however, that the large majority still rely, as I had done, on the tourniquet.

I find that in a very useful and practical book (*Amputation Stumps*, Oxford War Primers, 1918) the author, Mr. C. Martin Huggins, F.R.C.S., writes (p. 114) in favour of the supra-trochanteric operation in certain cases; the method is also commented on favourably in the *Manual of Surgery*, by Thomson and Miles, 1920, p. 539.

A Post-Graduate Lecture

ON

CLINICAL ASPECTS OF ABDOMINAL TUBERCULOSIS.*

BY

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THE great frequency with which tuberculosis attacks the abdomen in childhood, the wide variations in its manifestations, and the grave results to which it often leads, all combine to make it a disease of prime importance in the abdominal surgery of the first two or three decades of life. My purpose in the following remarks is to approach the subject from the point of view of clinical diagnosis, and to state the conclusions to which my own experience has led me on the subject of the appropriate surgical treatment.

Tuberculosis of the Intestine.

Tuberculous ulceration of the intestine in its early stages is a problem for the physician, and rarely, if ever, requires surgical intervention. A history of diarrhoea, accompanied by the passage of some blood and mucus per rectum, is not uncommon in all classes of abdominal tuberculosis, and such a feature in the history gives us evidence of some value, as suggesting earlier tuberculous ulceration of the bowel. It is only when ulceration has gone on to cicatrization, with stenosis of the intestinal lumen, that the need for surgery arises. Tuberculous ulcers of the bowel commence, as is well known, in the lymphoid tissue of the mucosa, either in the larger collections known as Peyer's patches, or in the solitary follicles, and such ulcers are accordingly commoner in the lower end of the ileum and near the ileo-caecal valve. Two forms of intestinal stenosis are met with in these old tuberculous cases—in one the ulcer, which tends to spread in a circular direction round the lumen of the bowel, gives rise in the process of healing to an annular cicatricial diaphragm. There may be many such stenoses in the small intestine, but not uncommonly they are single. In the second form there is a massive formation of fibrous tissue, which gives rise to a gross thickening of the intestinal wall, as well as a narrowing of its lumen. I will illustrate these types by two cases:

CASE I.

A woman, aged 36, on whom I had operated eighteen months before for tuberculous wrist with a very satisfactory result, returned to hospital complaining that for the past twelve months she had suffered from intermittent attacks of acute pain in the left of the epigastrium. These attacks had occurred with increasing frequency, until they came on every week, and were accompanied by vomiting. There was no history of jaundice. On examination the upper abdomen was somewhat fuller than normal, but no palpable mass could be detected, and there was no visible peristalsis. There was no localized tenderness in any part of the abdomen, and *x*-ray examination was negative. In view of the nature of the attacks and the previous tuberculous lesion, the provisional diagnosis of tuberculous stricture of the intestine was made, and exploratory laparotomy undertaken. On examining the small intestine systematically a single annular, fibrous constriction was found in the jejunum some two feet below the duodeno-jejunal flexure. On the peritoneal coat of the bowel there were several small grey tubercles, and there was some enlargement of the mesenteric glands in the neighbourhood. The bowel above the stricture was somewhat hypertrophied and distended as compared with that below. Four inches of jejunum were excised, including the stricture, and lateral anastomosis performed. The patient made a rapid recovery, had no more attacks of pain, and when last heard of was in good health. Histological examination confirmed the diagnosis of tuberculous ulceration.

CASE II.

A woman, aged 29, had for five years been suffering from attacks of pain in the right iliac fossa, associated with local tenderness, vomiting, and increasing constipation. Her general health was poor, and she had lost a good deal of weight. On examination the right iliac fossa was found to contain a firm, palpable mobile mass, somewhat tender on pressure. There was no general abdominal distension. The diagnosis lay between ileo-caecal tuberculosis and carcinoma of the ileo-caecal valve. On exploring the abdomen the lower eight inches of the ileum, the ileo-caecal valve, and the caecum were found to be involved in a uniform hard and massive thickening, which strongly resembled a carcinomatous growth. On the peritoneal aspect, however, numerous small white tubercles could be made out. Lateral anastomosis between the normal ileum above and the transverse colon, combined with resection of the diseased area of bowel, brought speedy relief to her symptoms, and when seen recently, five years after the operation, she was in good health.

When such cases of hyperplastic ileo-caecal tuberculosis are met with in young children, they must be diagnosed from chronic intussusception or appendicitis with abscess formation. In chronic intussusception the attacks of pain are much more frequent and urgent, there is usually some passage of blood-stained mucus, and the illness is rarely of more than a few weeks' duration. In acute appendicitis with abscess formation there is again a much shorter history, with a typical sudden onset, and the mass is firmly fixed and not movable as in the case under discussion.

In older patients the diagnosis from carcinoma is a matter of extreme difficulty on account of the similarity of symptoms. In some cases the presence of subperitoneal tubercles will determine the diagnosis at operation, though even these may not be distinguishable from secondary carcinomatous nodules, and it may sometimes happen that the diagnosis between hypertrophic tubercle and carcinoma of the ileo-caecal valve remains in doubt until the specimen has been submitted to microscopical examination.

Tuberculosis of the Appendix.

Tuberculosis of the appendix, as an isolated lesion, is an occurrence of some rarity. The majority of recorded cases of tuberculous appendicitis have occurred in combination with hyperplastic ileo-caecal tuberculosis, and in such cases implication of the appendix in the tuberculous process must be regarded as a comparatively unimportant detail. The following case of primary tuberculosis of the appendix is the only one that has come under my care.

* Delivered at St. Mary's Hospital, Manchester.

CASE III.

A boy, aged 7, had had a brief attack of abdominal pain and pyrexia two years before he was brought to me with a history of two days' pain that began in the umbilical region and had settled in the right iliac fossa. He had not vomited, and his temperature and pulse were normal. On examination the boy did not look ill, but on palpation in the right iliac fossa there was a definite hard, tender mass, which felt much like an acutely swollen appendix with surrounding omental adhesions. The mass was, however, better defined and more mobile than usual, and there was little muscular rigidity.

A diagnosis of acute appendicitis was made, and laparotomy disclosed a hard, elongated mass lying below and to the inner side of the caecum. The mass was 4 in. long and 1 in. in diameter, and the omentum was adherent to its lower extremity. It was readily delivered through the abdominal wound, and proved to be an appendix, enormously distended and congested and twisted somewhat on its origin from the caecum. The adherent omentum was ligatured off and divided, without stripping it from the appendix; the appendix was removed by dividing it across at the healthy base, and the stump invaginated in the usual way. Examination of the specimen showed that the distal half was involved in typical hyperplastic tuberculosis, with areas of caseation here and there. The lumen of this distal half was reduced in size, but the proximal half, with thin and non-tuberculous wall, was distended with blood and pus, and the outlet into the caecum was blocked by a hard concretion. It was evidently, therefore, a case of acute obstructive inflammation of the appendix, superimposed on a chronic tuberculosis, which had given rise to no symptoms. The ileo-caecal region and adjacent glands were not tuberculous. The boy made an uneventful recovery, and is now, five years after the operation, in good health.

Tuberculosis of the Liver.

Tuberculosis of the liver is also a rare occurrence in surgical practice. Setting aside the cases in which the liver is involved in general miliary tuberculosis, tuberculous peritonitis, or multiple small tuberculous abscesses, cases are occasionally met with in which a solitary tuberculous mass is found in the liver and can be removed by operation. That the diagnosis of such a tuberculoma of the liver is by no means simple is illustrated by the following case.

CASE IV.

A boy of 13, who had been operated on a year previously for "tuberculous glands of the neck," came to hospital complaining of abdominal pain. On palpation a rounded, hard lump, about one inch in diameter, could be felt, and indeed seen, in the right epigastrium. It was evidently in the right lobe of the liver, and in view of his previous history the diagnosis of tuberculosis of the liver was made.

On opening the abdomen a solid yellow mass was found on the anterior aspect of the right lobe, with a smaller adjacent mass of a similar character. Both these masses were enucleated with ease, but it was noticed that instead of presenting the homogeneous appearance of caseating tubercles, they were somewhat lamellated and the appearance suggested gumma.

A Wassermann reaction taken after the operation was strongly positive, and histological examination of some of the excised tissue confirmed the diagnosis of gumma. It is quite possible that the supposed tuberculous glands that had been previously dealt with had, in reality, been the result of congenital syphilis.

Tuberculosis of the Mesenteric Glands.

I now pass to the consideration of the commonest form of abdominal tuberculosis—namely, tuberculosis of the mesenteric glands, and in this group of cases I do not include those with general tuberculous peritonitis in addition. The diagnosis of tuberculous mesenteric glands in children is by no means difficult, for it may be laid down as a broad general rule to which there are few exceptions, that wherever a child presents a firm, rounded, mobile lump in the umbilical or right iliac zones of the abdomen, unassociated with intestinal obstruction, the case is one of tuberculous adenitis. Surgical interference is necessarily limited to those cases in which the glandular implication is not too extensive. Where the whole chain of mesenteric glands is grossly enlarged and caseous, any attempt to excise them would endanger the blood supply of the bowel, to say nothing of the risk of lighting up tuberculous peritonitis. There is, however, a very common type of case in which one or two glands, lying along the ileo-colic vessels in the angle between the lower ileum and the ascending colon, are enlarged and caseous. These glands receive the efferent lymphatics from the appendix and ileo-caecal valve, and their infection with tuberculosis is closely analogous to the common tuberculous adenitis of the upper deep cervical glands which receive the drainage of the tonsils. I have frequently removed the appendix and the glands in such cases, but have never yet, on microscopical examination, found any evidence of tuberculous disease of the appendix, though typical tubercle formation can usually be found in the glands. In the case of tonsils which are removed in association with tuberculous cervical glands, we know that under 5 per cent. of such tonsils show tuberculous lesions. I believe that in the appendix, as in the tonsil, a chronic catarrhal inflammation of the lymphoid tissue, of a non-specific nature, acts as a predisposing cause to tuberculosis of the glands, and that the tubercle bacillus can be absorbed through the mucosa of either a normal or chronically inflamed appendix and give rise to no specific lesion until it reaches the nearest lymph glands.

What, then, are the indications for surgical interference in these cases? I believe operation should be undertaken if, after a few weeks' constitutional treatment, the glands do not disappear, provided that the glandular swellings are not too extensive. I believe further that if recurrent attacks of colicky pain are associated with glandular enlargement operation should be advised in any case, for such pains signify some mechanical interference, by kinking or adhesions, or perhaps by an associated stenosis, with the peristaltic movement of the bowel.

CASE V.

A girl, aged 7, was brought to hospital with a history of repeated attacks of abdominal pain, accompanied by vomiting, during the previous six months. The child was thin, and the abdomen somewhat distended; on the left of the umbilicus an indefinite hard mass could be made out on palpation. Laparotomy disclosed a mass of caseous glands in the upper mesentery adherent to the transverse colon and kinking it somewhat acutely. The glands were freed from the colon and excised, and an omental graft placed over the area of colon denuded of peritoneum. Since this operation was performed, nearly a year ago, the child has been free from the attacks of pain, and has put on weight.

Occasionally, as is well known, such isolated tuberculous glands will produce a kink of the adherent bowel sufficiently grave to cause acute intestinal obstruction, and I have records of one case in which gangrene of the apex of an adherent intestinal loop had resulted, and necessitated resection of the bowel. The cord-like adhesions so prone to result from tuberculous mesenteric glands in childhood are, of course, one of the commonest causes of acute intestinal obstruction in adult life.

Tuberculous Peritonitis.

In considering the subject of tuberculous peritonitis I would first remark that whereas, according to *post-mortem* statistics, this disease is most common between the ages of 30 and 40 years, according to my clinical experience it is most usually met with between the third and twelfth years of age. We can distinguish broadly two main clinical groups of tuberculous peritonitis:

1. The *ascitic* type, in which the whole peritoneum is dusted over with innumerable tubercles, varying in size from the finest grey granules to discrete yellow nodules almost as large as a pea. In this type adhesions, if present at all, are unimportant in number and extent, and a massive ascites dominates the clinical picture.

2. The *plastic* type, with a large, doughy abdomen, in which tympanites is more evident than ascitic fluid. In this second form there are often localized pockets of clear fluid, but the outstanding feature is universal adhesions, fibrous in character, which often obliterate the peritoneal cavity almost completely. In the graver cases of this group large caseating tubercles are found between adjacent and adherent coils of intestine, and in some, though this is infrequent, definite abscess formation occurs.

These two clinical groups have this in common, that the child's abdomen swells, and at the same time there is wasting of the limbs and face and marked failing in energy; but, whereas in the ascitic type there is shifting dullness in the flanks and a fluid thrill, in the plastic form these latter signs are absent, and there are commonly palpable masses of adherent, infiltrated omentum, with considerable enlargement of the mesenteric glands. Symptoms of associated tuberculous ulceration of the intestine are uncommon in each type in my experience, though there is not infrequently a previous history of blood-stained diarrhoea. Pain is unusual in the ascitic form, and may or may not be present in the plastic.

It has long been recognized that laparotomy gives the most satisfactory results in the ascitic form. To what mechanism we should attribute the remarkable improvement that occurs in most of these cases from the day of operation is a problem on which many theories have been

elaborated, and concerning which little definite is known, but this improvement is an undoubted clinical fact. It is not to be denied, of course, that certain of these cases make a complete recovery under medical treatment without surgical assistance, but the change in their condition after laparotomy and evacuation of the ascitic fluid is so rapid and so striking that there is, I think, no doubt that operation has a most definite influence on the course of the disease.

CASE VI.

A girl of 14, who had had no previous ill health, was playing hockey for her school team when she noticed an unwonted shortness of breath. Seven days later, when I saw her, there was a large collection of ascitic fluid, without any pain, and her limbs were already wasting. Operation, performed three days later, showed tubercles so profusely scattered all through the peritoneal cavity as to be confluent, with great thickening of the peritoneum itself, but no adhesions. When seen eight months after the operation she had put on over 28 lb. in weight, the abdomen was normal, and she appeared to be in every respect a healthy girl.

The abdominal incision should always be sutured in layers without drainage, on account of the danger of mixed infection and the greatest care should be taken to prevent tuberculous infection of the abdominal wall—a not uncommon complication which is a cause of serious delay in convalescence.

The prognosis after laparotomy in the plastic type of tuberculous peritonitis is generally considered to be poor, and it is undoubtedly a fact that the percentage of recoveries is smaller in this than in the ascitic type, whether treated by medical or surgical measures. There is the further consideration that laparotomy in these cases is by no means devoid of risk, since the intestines are firmly adherent to the abdominal wall and to adjacent coils, and unless the greatest care is exercised by the surgeon, a faecal fistula may readily be produced, with disastrous results. I was somewhat surprised to find, however, on tracing a series of eight of these cases in which I had operated as a last resort, that five of them, in spite of the very grave prognosis that I had given on the strength of the operative findings, were in good health after four, seven, one, two and a half, and two years respectively, and all dated improvement from the operation. One patient had made such a rapid and complete recovery as to be on active service in Mesopotamia for two years without any ill health. Of the remaining three cases, one improved for a time, but died of bronchopneumonia one year after operation, one is suffering from pulmonary phthisis and still has abdominal pains and distension, and one developed a faecal fistula shortly after the operation and died in about three weeks. The series is, of course, too small for any wide conclusions, but it does at least suggest that there is something to be gained in these cases by surgical measures when medical treatment has failed.

CONCLUSIONS.

I would sum up the general indications for operation in the various types of abdominal tuberculosis as follows:

Pain, when it occurs in recurrent, well-defined, colicky attacks, especially if they return with regular periodicity and sharp intensity, signifies a mechanical interference with intestinal peristalsis, and this can only be relieved by operative measures.

Glandular masses in the mesentery, if not too extensive, and if they do not yield rapidly to constitutional treatment, should be excised, and this is particularly urgent when they are associated with colicky attacks of pain.

Palpable masses in the ileo-caecal region associated with signs of chronic intestinal obstruction are an emphatic indication for laparotomy and resection of the tuberculous ileo-caecal region should such be found.

The ascitic form of tuberculous peritonitis is essentially a disease for surgical treatment. The operation is free from danger, and its beneficial results are usually dramatic. I need hardly labour the point that the utmost care in the medical or constitutional treatment is of great importance in the cure, but I wish to emphasize the view that operation is almost equally essential.

Finally, in the plastic type of tuberculous peritonitis, if the trouble does not yield to the ordinary medical measures, operation may be undertaken with a fair degree of safety, provided that no extensive attempt is made to separate adhesions, and there is some ground for hoping that even these apparently desperate cases may make a complete recovery.

OBSERVATIONS ON THE RESTING METABOLISM OF CHILDREN AND ADULTS IN SWITZERLAND.

BY

LEONARD HILL, M.B., F.R.S., AND J. ARGYLL CAMPBELL, M.D.

With the Co-operation of

BERNARD HUDSON, M.D.

WE have carried out observations at the English sanatorium in Montana, in November and December, where the patients are under the supervision of Dr. B. Hudson, and where a laboratory and every assistance in our work was given us. We also made observations at the Belgian children's clinic under Dr. Chassot, and the Geneva sanatorium under Dr. Betchow, and we are greatly indebted to these physicians for the facilities they afforded us.

In October the sunshine at Montana averaged over eight hours a day, and during the last three weeks of November the sun shone every day, while the air was calm and frosty; the thermometer, while showing from 5° to 20° F. of frost at night, rose at midday in front of the sanatorium to some 50° F. dry bulb and 35° F. wet bulb. Montana is at an altitude over 5,000 ft., and the midday winter sun piercing the clear atmosphere was so warm that it raised the surface temperature of a dark fur or wool coat to 100° or 120° F., and a shade became necessary for the head.

While the sunlight absorbed by the clothes and skin warms those parts of the body exposed to it, the shaded parts of the body are actively and pleasantly cooled by the cool dry air, and the heat production of the body is thus stimulated. In the shade, or before the rising and after the setting of the sun, the cold dry air stimulates the body heat production far more powerfully. Patients can sit or lie out of doors in the sun in comfort, even without overcoats, after 9 a.m., when the temperature of the air is scarcely above the freezing point. In sheltered sun-boxes, open only to the south, they can comfortably expose themselves nude to the sun. Such exposure has, of course, to be gradually inducted, and, while suitable for surgical tuberculosis, is considered unsuitable for phthisis. We suggest that, given a sufficiently high cooling power of the air, insolation might be borne by such cases when not febrile. Such is the experience of Rollier at Leysin. It is obviously unwise to produce tissue cell degradation in the skin or blood by exposure to the sun when the body is dealing with an active tuberculous process and is febrile.

At an altitude of 5,000 ft. the greater tenuity of the air not only stimulates red blood formation, but the breathing, and the greater volume breathed of dry cool air acts with advantage on the respiratory membrane, for the amount of water vapour evaporated daily from this membrane may be some three times greater in patients taking exercise in the Alpine winter climate than in people living a sedentary life in England indoors, where the water vapour tension is much higher. Saturated air at 0° C. holds some 5 grams of water vapour per cubic metre, while air saturated at almost body temperature holds some 40 grams. The dry cool air as breathed in is warmed up to almost body temperature and saturated with water evaporated at this temperature from the breathing passages. The greater evaporation of water entails a greater flow of arterial blood and lymph through the respiratory membrane, and this helps to keep up its health and immunity to disease.

The cooling power which the Alpine air exerts out of doors on a dry surface at body temperature, as measured by the kata-thermometer, is some three times greater than in ordinary conditions indoors, and the evaporative power twice as great. The heat production of the resting subject, stimulated by this cooling power, is put up, above that taken indoors in London, some 40 to 50 per cent. in the case of clothed adults, and 60 to 90 per cent. in the case of children exposed more or less nude to the sunny, calm Alpine winter atmosphere. A cold wind and cloudy sky may raise the breathing metabolism of clothed children over 200 per cent. Increased appetite, better digestion, and more active breathing and circulation of the blood result from this increased heat production. Owing to the climatic conditions the growth of muscular tissue is enhanced and fatness and flabbiness opposed. For early cases of phthisis and all cases of surgical tuberculosis, then, the Alpine winter climate offers great advantages.

TABLE I.—*Children with Surgical Tuberculosis at Montana (Winter).*

Place.	Subject.	No. of Observations.	Age.	Weight in Kilos.		Heat Loss.*	Calories per Diem Found.	Standard Basal.	Percentage Increase over Basal for same Weight.
				Found.	Standard for same Age.				
Belgian children's clinic, balcony (partly nude)	3 girls	6	14.0	28 6	41.0	2 28	2147	1012	112
Ditto, balcony (partly nude)	7 boys	14	10.9	25.2	32.0	2.16	1712	993	72
Ditto, shelter (clothed)	2 girls (less exposed to cold wind)	2	8.5	26 3	23.0	2.33	1963	954	95
Ditto, shelter (clothed)	2 boys (more exposed to cold wind)	2	9.4	30.0	27.5	3.90	3825	1115	225
Geneva sanatorium (clothed)...	3 boys	3	12.5	40.2	37 5	2.07	2073	1300	59

* Millicalories per sq. cm. per sec.

We employed the Douglas-Haldane method of indirect calorimetry, the subject lying quiet for half an hour before the sample was taken. Table I shows the results obtained from boys and girls under 16 years of age suffering mainly from surgical tuberculosis. The calories per diem found may be compared with the basal standards of Benedict and Talbot [1] for the same weight. It will be noted that the calories found show increases varying from 59 to 225 per cent. above the basal. The standard figures for the weights of healthy children of the same age are also given. In some cases our subjects were under-nourished, but others gave better figures for weight than the standards, so that under-nutrition cannot play a great part in the increase noted. Blunt and others [2] find that under-nourished children give higher figures for calories per diem than normal children. We consider that the increase in metabolism was due to exposure to the high cooling power of the atmosphere. The Belgian children on the balcony were partially nude and exposed on sunny days, calm or with very gentle breeze. The children in the shelters were clothed, but exposed on a cloudy day to a very cold wind—so cold was it that the children's pulse could not be felt at the wrist owing to vaso-constriction, and one had to listen to the heart. The Geneva children were clothed. Slight shivering was obvious in some cases. On some days the children were more exposed than on others, but in any case were exposed to a much higher cooling power than children enclosed in a calorimeter chamber, such as that used by Benedict and Talbot. One would expect, therefore, a much higher degree of tone under the former conditions than the latter. The children at Alton Hospital, Hampshire, gave an increase of 40 to 50 per cent. above basal by exposure to open air in the summer and 130 per cent. in the winter, but the children at Alton were never exposed so much as to allow shivering. The Alton summer figures are not much less than the Montana winter figures taken on calm sunny days. The children at Hayling Island undergoing sea-bathing show figures as high as those given by the clothed children exposed to a cold wind on a cloudy day at Montana. The body metabolism can, then, be excited by exposure and bathing in Southern English summer to the same degree as by exposure to the winter Alpine climate.

Table II gives the results obtained from adults, some of whom were healthy and others suffering from phthisis. For standards we have taken the basal to be 40 calories per sq. m. per hour for men, and 35 calories per sq. m. per hour for women. It will be observed that in all cases the metabolism was above the basal, the increase varying from 38 per cent. to 79 per cent.

All these observations were taken two or three hours after breakfast, so that the influence of food must be considered. However, in many cases the breakfast was the small continental meal, and this does not increase the metabolism, taken three hours after it, more than 2 per cent. (Du Bois), A large breakfast would not account for more than 20 per cent. increase. Here again we consider that the main cause for the rise in metabolism was the exposure to the higher atmospheric cooling power. None of the phthisis cases submitted their bodies to insolation. They rested on couches fully clothed, and, as a rule, shaded the head. They took exercise before the midday heat of the sun, and after when the sun was down. The pine woods provided plentiful shade for the morning walk. The serious cases of phthisis—those confined to bed—were not exposed to insolation, but were able to derive benefit from exposure to Alpine conditions of open air, and showed no less an elevation of metabolism. The metabolism of the more serious cases must rise to meet the cooling power to which the patients are exposed, otherwise their body temperature will fall and they will require protection by shut windows, more clothing, and artificial heat. It is obvious that those cases will benefit from exposure which can respond to it by adequate increased metabolism and digestion and absorption of food. Thus, Sir Henry Gauvain finds that the sea air at Hayling Island is too strong for weakly young children, and they do better at Alton. Their surface exposure is too great in proportion to their body mass. On the other hand, stronger, heavier children do better at Hayling Island. Open-air treatment requires to be controlled by exact measurements and good sense. The sunshine and calm frosty air of the Alpine winter make the management of open-air treatment comparatively easy, and its effect on the feelings of the patients hastens their response.

TABLE II.—*Adults in Switzerland. Montana (Winter).*

Place.	Subject.	No. of Observations.	Age.	Weight in Kilos.	Heat Loss.	Calories per Diem.	Standard Basal (40 cals. per sq. m. per hr.).	Percentage Increase over Basal.
Geneva sanatorium ...	7 men (T.B.)	8	27.6	65 3	1.99	3021	1690	79
Palace Hotel	5 healthy men	9	33.0	57.5	1.53	2319	1670	38
Palace Hotel	1 healthy woman	2	30.0	6.10	1.65	2282	1315*	69
Palace Hotel	8 men (T.B.), walking cases	8	29.0	66.2	1.57	2176	1730	43
Palace Hotel	2 women (T.B.), walking cases	2	24.0	56.7	1 50	2015	1305*	54
Palace Hotel	3 men (T.B.), bed cases	3	30 0	68.0	1.60	2623	1815	44
Palace Hotel	4 women (T B.), bed cases	4	33.0	49.9	1.39	1816	1270*	43
Palace Hotel	3 visitors	7	36.0	64.8	1.58	2421	1690	43

* Basal for women = 35 cals. per sq.m. per hour.

The accompanying tables show the average results of our observations.

REFERENCES.

[1] Carnegie Institution of Washington. Publication No. 302, 1921.
[2] *Journ. Biol. Chem.*, November, 1921, 49, p. 247.

PERTUSSIS WITH A LEUCOCYTOSIS OF 176,000.*

BY

GEOFFREY BOURNE, M.D., M.R.C.P., AND J. M. SCOTT, B.A.

THIS case is reported for two reasons. No other white blood count of such a high figure (176,000) has come to the notice of the writers, excluding those found in leukaemia. It is hoped that publication of such a leucocytosis in connexion with a case of whooping-cough may arouse speculation as to the possible reasons for its coexistence with this disease.

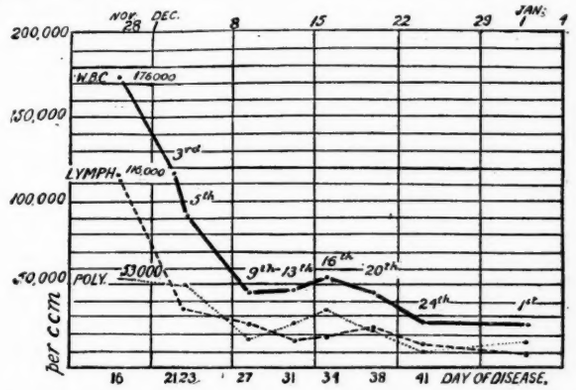
The patient, a female child aged 1 year and 9 months, was admitted to St. Bartholomew's Hospital under the care of Dr. Hugh Thursfield, to whose kindness the writers are much indebted for permission to publish the particulars of the case. The child was admitted with fever (102°), dyspnoea, and tachypnoea (rate 60), and with signs of bronchopneumonia in both lungs, especially the right; an ulcer was present on the fraenum linguae.

History of the Condition.—For the preceding twelve days the child had been subject to fits of coughing of gradually increasing severity and duration. During the later attacks she was alleged to have become blue in the face. The cough was paroxysmal and composed of numerous successive expiratory efforts. No whoop had been heard. The attacks were followed by vomiting.

Course.—Fever, tachycardia, and tachypnoea persisted for six weeks, during which time the pulmonary signs gradually cleared up. The child was discharged after a stay in hospital of seven weeks and an illness of nine weeks' duration.

Blood Counts.

The first white blood count was taken on November 28th, the sixteenth day of the disease; it showed 176,000 white cells per cubic millimetre, of which 116,000 were lymphocytes; the dates of the successive counts are shown in the chart. The black line in the diagram represents the total white blood count, the divided line the number of lymphocytes, and the dotted line that of polymorphonuclear cells.



In connexion with the high lymphocytosis observed, it is interesting to compare the results of two German observers.

Reiche[1] reports an outbreak of influenza in a ward devoted to whooping-cough. He says that 8 of the 16 cases already in the ward were attacked by influenza, and that one in the early stages of both diseases was admitted soon after. The latter case had a white count of 172,000—a figure nearly identical with that noted in the case herein described. He would seem to think that the mixing of the infections was the reason for the high figure. The explanation would be applicable to this case, seeing that it undoubtedly occurred early in the present epidemic of influenza. All evidence, however, is valueless while the cause of influenza is yet unproved.

Hess[2] of Frankfort alleges that the lymphocytosis of whooping-cough is the direct mechanical result of the paroxysms; he has made numerous blood examinations, and states that the lymphocytosis is greatest in the paroxysmal stage—indeed, that the highest figures actually coexist with the height of the paroxysms themselves. He suggests that the paroxysms, by increasing intra-abdominal pressure, squeeze lymphocytes out from the spleen and the thoracic duct into the circulation.

The present case also seems to show that the lymphocytosis is high at the end of the paroxysmal stage. Clinically, although the white count fell from November 28th till December 9th, no improvement was obvious. That this fall in the count was of good prognostic significance is suggested by the fact that from the latter date improvement was progressive. It is interesting to observe that the excessive lymphocytosis—presumably a manifestation of active pertussis—was present sixteen days after the onset of the disease.

REFERENCES.

[1] Reiche: *Muench. med. Woch.*, 1920, 67, 1252. [2] Hess: *Zeit. f. Kinderheilk.*, 1920, 27, 117.

* From a Non-professorial Medical Unit, St. Bartholomew's Hospital.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

REACTION TO TREATMENT BY KLEBS-LOEFFLER'S BACILLUS VACCINE.

WHEN so much is being written for and against vaccine therapy the following account of a case under treatment in hospital may be of interest, especially as one has read a lot concerning the freedom from reaction of patients who have been treated by certain types of vaccine.

In February, 1921, a patient, aged 18 years, was admitted to the diphtheria block of this hospital as a case of faucial diphtheria. Microscopical investigation showed that this was indeed the case, and the usual treatment was given, including antitoxin, and the patient was discharged on March 3rd, after an uneventful recovery. On November 4th she complained of sore throat, and a swab having been taken by her doctor and examined by me, the Klebs-Loeffler bacillus was found. On admission to hospital her tonsils were found to be dotted over with pieces of membrane, the constitutional disturbance of the patient being very slight. No antitoxin was given, and from inquiries into the history the case was looked upon as one in which the diphtheria bacillus had been lurking in the tonsils and throat. A course of vaccine treatment was begun, the ordinary stock vaccine being used (strength: 1 c.cm. = 50,000,000 organisms). I began by giving 0.5 c.cm., and the list below shows the dates of administration, dosage, temperature, and pulse rates:

Date.	Dose.	Temperature.	Pulse Rate.
Nov. 5	0.5 c.cm.	98.2°	72
,, 9	0 75 ,,	99.6°	90
,, 13	1.0 ,,	97.6°	80
,, 17	1.0 ,,	98°	80
,, 18	*nil*	99°	86
,, 19	—	98.2°	88
,, 20	—	99.6°	98
,, 21	—	100.6°	98
,, 22	—	101°	96
,, 23	—	101°	100
,, 24	—	101°	96
,, 25	—	100.4°	96
,, 26	—	99.6°	88
,, 27	—	98.2°	80

On November 18th, the day following the final injection, which was given in the right arm, a localized swelling and tenderness were present at the site of injection. On the 21st the left arm and forearm became almost covered with raised, red, erythematous-looking spots, which varied in size from 2 by 2 inches to 1/2 by 1/2 inch. They were exceedingly painful, gradually increased in size, and many became confluent, forming large, inflamed patches, darkish-red in colour, and showing black staining beneath. The right arm by this time was greatly enlarged, with the appearance of a very severe cellulitis. On the 25th a similar eruption appeared on both legs, the spots being again painful and exquisitely tender to the touch. The patient complained of pains in the elbow and also in the knee joints, and the general condition was alarming. On the 27th the temperature dropped, and the pain in arms and legs disappeared. The many patches on the arms and legs began gradually to fade, but in disappearing they passed through exactly the colour changes which a traumatic extravasation of blood undergoes in the tissues.

At present, with the exception of dark staining on the arms and legs, the patient feels quite well. The Klebs-Loeffler bacilli have disappeared from the throat.

I am much indebted to the M.O.H. for Brighton, Dr. Duncan Forbes, through whose courtesy I am enabled to publish this case.

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RUPTURE OF THE EXTENSOR LONGUS POLLICIS TENDON.

I WAS much interested in paragraph 136 of the *Epitome of Current Medical Literature* (February 11th) on "spontaneous" rupture of the extensor longus pollicis tendon after Colles's fracture, as recently I had a case of this obscure complication.

Mrs. B——, aged about 55, a farmer's wife, sustained an injury to her right wrist by a fall at the beginning of December, 1921. Thinking it was merely a "sprain," she paid little attention to it at the time, and, in fact, proceeded with a big baking. It was not until nearly a fortnight later that she consulted me about the persistent pain, swelling, and

stiffness of the wrist. The evidence of an impacted Colles's fracture was undoubted, and the joint was immobilized by a single anterior splint for a week and then placed in a sling, gentle massage being kept up from the first. A week after removal of the splint, when very slight active movements had been commenced, quite suddenly one morning she felt the thumb weak and found that, although she could bend it into the palm, she could not straighten it. There was no pain whatsoever, and she was quite definite about the sudden onset of the disablement.

Separation of the long extensor was diagnosed and treated by splinting the thumb in the position of extreme extension. I have not seen the patient recently, but a fortnight ago recovery was not yet complete.

Owing to the apparent rarity of this complication—as evinced by Stapelmohr's inability to collect more than ten cases, including his own two—I think it worth while to place this on record.

S. NORMAN DYKES, M.B., Ch.B.Glasg.

East Kilbride.

INTESTINAL DISINFECTION IN ENTERIC FEVER.

IN five cases of enteric fever I have used pulverettes of dimol (dimethylomethoxyphenol), which has been recommended as a non-poisonous preparation for intestinal affections. It is also stated to be non-irritant.

In the recommended doses of 2 to 4 grains in two cases intestinal haemorrhage ensued within forty-eight hours. The haemorrhage in each case was brisk, but quickly ceased on discontinuing the drug.

In three other cases, where the dose was reduced to 1 grain, then to 1/2 grain twice daily, nothing untoward occurred.

The cases were comparatively mild, and were selected for trial out of a total of 116 enteric cases admitted to our hospitals in 1921. The temperature in each case had come down to normal for a day or two, but was irregular and varied between 98° and 100° F. at the time of administration.

The number of cases is rather small to condemn the use of the drug in enteric fever, but the pungent taste of the pulverette when the outer coating is removed suggests that it might not be as free from irritation as the advertisement states.

THOS. E. FRANCIS, M.D.,
M.O.H., Barnsley.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ULSTER BRANCH.

AT the winter meeting of the Ulster Branch, held in the Medical Institute, Belfast, on February 9th, the President, Dr. ROBERT REID, in the chair, the following cases were shown: Mr. FULLERTON, a young man with a branchial cyst, a young woman with a cystic hygroma of the neck, and a young woman with enlarged glands of the neck suggestive of Hodgkin's disease. With regard to the second case, Mr. CRYMBLE said he had attempted to remove a cystic hygroma of the neck, but it had returned with increasing rapidity of growth. Mr. FULLERTON also showed a tooth-plate which he had successfully removed by oesophagotomy; an attempt to remove it by the oesophagoscope had failed; it was opposite the arch of the aorta. He sutured the oesophagus in two layers.

Mr. CRYMBLE showed a case of a young girl with ankylosis of the left temporo-mandibular joint cured by excision of the head of the mandible; there had been a history of ankylosis for five years following some prolonged illness; the jaw opened to the extent of about 3 mm.; he had tried wedges, and secured a gain of only 2 to 3 mm. It was considered inadvisable to give a general anaesthetic, so, under a local anaesthetic with a short period of general anaesthesia, he removed the head and adjacent portion of the ascending ramus, and the jaw fell open after the five years' fixation; the right joint was free; six months after there was 30 mm. movement. He also showed a case of a young child from the left half of whose forehead he had removed a large black hairy mole in its entirety; union had been obtained without grafting, and no recurrence had taken place.

Mr. FULLERTON gave a brief account of the recent advances of cystoscopy and pyelography; he traced the development of the diagnosis of urinary affections from the days of guesswork to the present days of accurate knowledge gained by the newer methods and apparatus. The first substance used was collargol, but it was viscid and colloidal; its chief danger lay in its tendency to permeate the kidney if a greater force was used than 30 mm. of mercury. Recently solution of thorium nitrate was much used in America and was of great value. Solution of sodium bromide was now commonly employed; it was cheap, easy of manipulation, was innocuous and gave a good shadow. His own practice was to let flow from a Record syringe some of the solution into the ureteral catheter; he raised the syringe about two feet above the level of the patient; this was done in the *x*-ray room; the capacity of the normal kidney pelvis was about 4 to 12 c.cm.; the slightest loin pain showed tension of the pelvis, and was an indication for immediate stopping. Mr. Fullerton then showed a series of lantern slides of (1) pyelograms illustrating various abnormalities of the pelvis and ureter; in this way early cases of hydronephrosis, tumour of the kidney, tuberculosis, inflammatory conditions, could be recognized; (2) radiograms illustrating the value of the opaque catheter in determining (*a*) whether shadows seen on the plate were in relation to the kidney or ureter, or were outside this area; stereoscopy was very important in determining whether the shadows were in the same plane as the ureteral catheter; (*b*) the relation of foreign bodies, supposed to be in the neighbourhood of the kidney or ureter, to the opaque catheter. In this way accurate localization of the foreign bodies could be made, which was a factor of great importance when their removal was contemplated; the removal of missiles of war was much facilitated.

In speaking to the paper Professor SINCLAIR expressed his appreciation of it and of the slides, and Mr. IRWIN showed a slide where pyelography pointed to incipient hydronephrosis, which was cured by fixing the kidney.

Dr. MORROW read short notes of a case of a female, aged 40, who had suffered from "indigestion" since childhood: there was much flatulence, constipation, and some tenderness over the appendix. The symptoms did not fit into any of the recognized forms of abdominal trouble, and he had asked Mr. Irwin to do an exploratory laparotomy.

Mr. IRWIN said that duodenal ileus might be either acute or chronic. The acute embraced cases of acute dilatation of the stomach; the chronic was first described by Wilkie, and was now recognized as one of the causes of "indigestion" with recurring bilious attacks. The modern tendency was to explain diseases of the alimentary system on mechanical principles—for example, pyloric and ileo-caecal obstructions, etc. To this group Wilkie had added duodenal ileus: the cause of the obstruction was either in the root of the mesentery or in a prolapsing caecum and proximal colon. There was a frequent association with chronic ulcer of either stomach or duodenum, and it might occur with gall stones and pancreatitis. It occurred mostly in the female sex and the symptoms included: (1) a long history of indigestion; (2) pain and flatulence unless modified by careful dieting; and (3) periodic attacks of bilious vomiting. The attacks were made worse by prolonged standing, by constipation, and were frequently accompanied by a slight degree of jaundice. Similar symptoms were occasionally a sequel to gastro-enterostomy, where some obstruction occurred at the duodeno-jejunal junction, requiring Roux's operation in "Y." Signs were often absent, but occasionally epigastric fullness was made out. X rays had not given much help in the diagnosis. The treatment consisted in doing a lateral anastomosis between the jejunum and the duodenum, proximal to the root of the mesentery. The history, symptoms, and signs in Dr. Morrow's case agreed with those already given, and this mode of treatment was adopted with success.

Mr. Irwin also showed an *x*-ray lantern slide illustrating obstruction of the duodenum in an old case of gastro-enterostomy, in which the symptoms agreed with those in Wilkie's cases, and in which the "Y" operation gave instant relief.

Mr. CRYMBLE read notes of a case of jaundice produced by enlargement of the head of the pancreas and relieved by cholecyst-duodenostomy; the Wassermann reaction was positive, and it was considered probable that the enlargement was due to a gumma of the head of the pancreas. The patient is at present receiving antisyphilitic treatment and has put on a stone in weight. Mr. Crymble also read notes of a case of chronic obstructive jaundice due to enlargement

of the head of the pancreas. The symptoms were relieved by cholecyst-duodenostomy; the cause of the enlargement was not known.

Dr. CALWELL made some remarks on some of a series of nerve cases that he had demonstrated that morning in his wards in the Royal Victoria Hospital. The two chief points were the incidence of the toxin of encephalitis lethargica on the motor nuclei of the base of the brain, and evidence towards an explanation of the variety of the signs in myelitis.

Reports of Societies.

PSYCHOLOGICAL ANALYSIS IN DIAGNOSIS.

AT a meeting of the Medico-Psychological Association of Great Britain and Ireland, held in the rooms of the Medical Society of London on February 23rd, with the President, Dr. C. HUBERT BOND, in the chair, Dr. T. S. GOOD (Ashurst Hospital, Oxford) read a paper on the use of analysis in diagnosis. Analysis, he said, must be used by every practising physician and surgeon in all kinds of cases; they must be influenced in their decision by what they saw, felt, and heard. Until a quite recent date the material upon which the doctor drew had been the conscious only; but, thanks to the ingenuity, the genius, and the patient work of Freud, a new source of medical knowledge had been opened to the profession, for he found that the solution of many of the problems as to the cause of neuroses and psychoses lay deeply buried in the unconscious mind of the patient. By special methods of technique these elements could be disclosed and brought into consciousness, and energy hitherto dammed back could be released to bring about improvement or cure. This had never been better demonstrated than during and after the war in cases of shell shock and neurasthenia; for many cases had been cured by psychotherapy, of which psycho-analysis was one of the instruments. By following the method of free association, physical conditions could be diagnosed which would otherwise escape notice or be only partially understood, because the key to the solution of the physical mischief lay repressed in the unconscious, and so could not be furnished by the patient in response to the usual examination.

Dr. Good elaborated the point by quoting in detail two cases, which had been diagnosed respectively as neurasthenia and hysteria.

The first case was that of a man, aged 50, who, after four years of war, was invalided out in 1918, with the diagnosis of neurasthenia. He had been under a varied treatment, and had tried, but with only partial success, to resume his pre-war occupation of motor-body making. There was nothing abnormal in the family history. At his first attendance at the clinic he was obviously apathetic and depressed, questions being answered slowly and with apparent indifference. He complained of a headache, great depression, inability to work, loss of memory, and was puzzled as to what could be the matter with him. He said that at times he felt "lost and giddy." The right side of his face did not move so well as the left. The tongue was protruded straight; the pupils were normal and equal in their reactions; fundi and vision were also normal. The only abnormality in the reflexes was that the plantar on the right was indefinite. Oppenheim's reflex was absent. Sensation, co-ordination, muscular sense were normal, also muscle tone, and there appeared to be nothing wrong with the organs; the pulse rate was 80.

The two abnormalities mentioned indicated that the case was not purely functional, but they did not form a sufficient basis for a firm diagnosis. He was unable to remember a certain period of his war experiences; he showed a disinclination to talk of the war, beyond stating that to it he attributed all his disability; he had a desire to be quietly by himself. After the third interview the man's demeanour changed, and he began to co-operate in his treatment and to associate, with the result that his thoughts and feelings on his illness became clearer. A part of his life which he could not account for, however, was a period during a voyage at sea. He was on a ship when it was torpedoed at sea, but he could remember nothing between that explosion and his being in hospital. But details emerged in his mind as he evinced more interest and showed co-operation, and eventually he was able to describe what happened after the ship was struck. It appeared that he was thrown across the cabin, and his head came into violent contact with a bulkhead, injuring his left parietal region; he remembered feeling and hearing his skull crack. Feeling very sick and ill, he rushed, with others, on to the deck. He was rescued from the sea and taken to hospital. The whole of this amnesia was removed at one sitting, and the patient then expressed great surprise, remarking, "I do not know why it is, but I feel all right, and am glad I can now remember everything." On returning to the clinic a fortnight later, he said his memory was good and he felt better, but instead of the dull headache he now had a new and more acute pain in the head, such as he had never experienced before, except when his head struck the ship's bulkhead, and the site was the same. This directed attention to a probable injury of the left parietal region, perhaps a fracture, with some resultant injury of the brain. A surgeon thereupon operated, and discovered a 2-in. fracture at the exact site of the pain and some bruising of brain substance. Previously there had been no suspicion of an organic element in the case. In this case, the amnesia having been cured, the clue was supplied by the patient himself. His attention to that stage had been so concentrated on his mental feelings that physical sensations were unnoticed until the mental conflict had been solved. The man had now recovered his mental poise, but the pain in the head was still present, and following the operation he had slight hemiplegia.

The second case was that of a man, aged 25, reputed normal before the war. After serving two years in the army he was discharged, the diagnosis being "hysterical fits." When his mother brought him to the clinic she said his disposition had now completely altered, for at times he was violent, aggressive, and irritable. He was said to have been having two kinds of fits, but both were ushered in by twitching on the right side of the face. Sometimes he became rigid, and seemed dazed and dull afterwards, with headache. In the other kind of fits he threw himself about, and was afterwards violent and irritable. The man was unable to remember any of the fits. When pressed to talk about the war he became irritable. Generally the reflexes on the right side were greater than on the left; on the right, also, there was some muscular weakness. At the second interview he was induced to talk about the war, when it was found that his memory of events for long periods was very defective; he did not remember why he had been sent home, nor when the fits started.

The detailed history which Dr. Good read showed that his trouble was connected with heavy trench-mortar warfare, in which he received a severe head injury. By the method of association the blank interval was made good, and then the patient talked freely about the episodes he experienced. After the recovery of the memory the emotional fits ceased, but the rigid fits increased in frequency. The right-sided weakness seemed to indicate that on that side there was increased intracranial pressure, probably due to head injury. Later the operation of decompression was performed, and since then he had had only two epileptiform attacks. He was discharged three months later. Four weeks afterwards his mother brought him again and said there had been no attacks since he was discharged, and that he was now working as a gardener.

After pointing out the parallelism in the two cases Dr. Good commented on the fact that one of them reacted by being depressed (introverted), the other by becoming excited (extroverted). The cases showed that psycho-analysis could be of use in diagnosing organic conditions.

The PRESIDENT, in thanking Dr. Good for his interesting contribution, deprecated any tendency to regard the materialistic and the psychiatric schools or lines of thought as being opposed to each other. The cases described in the paper showed how useful was the broad, inclusive view in unravelling difficult cases.

A short discussion followed, and in his reply Dr. GOOD elaborated at greater length some of the aspects of this line of inquiry.

GYNAECOLOGICAL SEQUELAE OF GENITAL TUBERCULOSIS OF CHILDHOOD.

AT a meeting of the North of England Obstetrical and Gynaecological Society, held at Sheffield on February 17th, with the President, Mr. HAROLD CLIFFORD (Manchester), in the chair, Mr. MILES PHILLIPS (Sheffield) read a paper on the gynaecological sequelae of genital tuberculosis of childhood. He had been interested in these cases for several years, and his chief object had been to collect evidence to prove that certain gynaecological complaints—for example, primary amenorrhoea, dysmenorrhoea, dyspareunia, and sterility—might occasionally be due to damage done to the genital organs by tuberculous disease occurring during childhood and before organs were fully developed. The evidence of the original disease nearly always indicated tuberculous peritonitis, and for this he had usually to rely on statements made by the patient or a near relative. For instance, one patient knew that at the age of 11 she was very wasted, had a swollen abdomen, and was sent into the country for months. Many of the patients were supposed to have had typhoid fever, and

he had actually had two cases of genital tuberculosis sent to him direct from isolation hospitals where they had been under treatment for this disease. None of his patients had symptoms of phthisis, but two or three had puckered scars on the neck suggestive of old suppurating tuberculous glands.

As regards the damage done to the genital organs, he had found the Fallopian tubes affected in all cases, the mucous membrane being hopelessly destroyed in some, in others the abdominal ostium closed and the lumen distended with pultaceous material.

In some cases the endometrium was affected, leading to more or less obliteration of the uterine cavity, and then primary amenorrhoea, haematometra, hydrometra, or even pyometra, might occur. The functional disturbances were as follows: Menstruation was generally late in starting, infrequent, and scanty, but in a few cases commenced at the average age and was free or even profuse. It was always painful. In some cases it was absent or the products were retained as a result of obstruction to the outflow. Sterility, with or without dyspareunia, was sometimes the chief symptom, and married life was very apt to aggravate the patient's troubles.

The speaker read notes of five cases bearing on the subject of the paper, and in conclusion stated that the prognosis as regards sterility was a gloomy one. It was advisable to warn the patient or a responsible relative that the uterus or appendages might have to be removed. Conservative treatment was unsatisfactory; radical measures gave excellent results.

Dr. DOUGAL (Manchester) read notes of a case in which ectopic pregnancy had occurred twice within four and a half months. Mr. LEYLAND ROBINSON (Liverpool) showed a specimen of sarcoma of the cervix. The patient was a 4-para, aged 40 years, and complained of backache and an offensive discharge of eighteen months' duration. The growth produced a localized ulcer indistinguishable from carcinoma, and it was only after operation that histological examination revealed its true nature. The epithelial structures of the cervix were unaffected, but the stroma was typically sarcomatous.

Mr. W. GOUGH (Leeds) read notes of a case in which rupture of the uterus had occurred through the scar of a Caesarean section performed two years previously. The uterus had been sutured with two layers of catgut at the previous operation.

The patient was admitted to hospital at full term complaining of pain in the back and lower abdomen. She was well enough to walk to the hospital, but within four hours she presented the symptoms of an abdominal catastrophe and operation was decided on. The abdomen contained a quantity of blood-stained fluid and a haematoma was present under the utero-vesical peritoneum and in the left broad ligament. This was due to the uterine scar giving way at its lower end. The uterine wall was incised to one side of the rupture and a dead child extracted. The old scar was then excised and the uterine wall sutured with catgut. Recovery was uneventful.

INFLUENCE OF COMPLICATIONS OF PREGNANCY ON INFANT MORTALITY.

A MEETING of the London Association of the Medical Women's Federation was held on February 4th at the Elizabeth Garrett Anderson Hospital, with Dr. LOUISA MARTINDALE (the President) in the chair.

Professor LOUISA MCILROY spoke on the subject of complications of pregnancy and their influence upon infant mortality. She began by pointing out how the spread of ante-natal clinic work opened up a possibility of dealing with such complications at an early stage, and increased the possibility of the use of general medical treatment, which should obviate many of these complications when due to toxaemia and similar conditions. She regretted the fact that as yet there was no system of training midwives in ante-natal work, and urged that facilities for obtaining laboratory reports of specimens should be made more easily available. She then discussed at some length two types of complications of pregnancy: (*a*) contracted pelvis, and (*b*) toxaemic conditions and their treatment. In dealing with the treatment of pelvic contraction stress was laid upon the necessity for ascertaining the relationship of the head to the pelvis rather than dependence upon actual measurement of the pelvis itself. Induction was seldom to be advocated before the thirty-sixth week, owing to the unfavourable prospect for the child's future life or welfare if done earlier. Caesarean section was still an operation associated with danger to the mother, and should not be lightly undertaken. The future of obstetrics lay in the ante-natal supervision, and by this means many of the diseases of pregnancy could be prevented, and also it would do away with much operative interference at the time of labour. The application of forceps was associated with risks to the child's future welfare, except in cases of flat pelvis where the head was retained in the cavity of the pelvis owing to defective expulsive forces. The toxaemias of pregnancy included abortions, premature death of foetus, and haemorrhages. Accidental haemorrhage also owed its origin in some cases to a condition of toxaemia. The early phenomena of pregnancy, such as vomiting, were not physiological conditions, but were due to the retention of toxins, and to the upsetting of the balance of the internal secretory organs, their adjustment being affected by the newly introduced ovum, which is also an internal secretory organ, although of a temporary nature. More laboratory work was required to aid clinical diagnosis and prognosis in cases of toxaemia.

An animated discussion followed, in which Dr. FRANCES HUXLEY, Miss BOLTON, Lady BARRETT, Miss BASDEN, Lady BRISCOE, Dr. LOUISA MARTINDALE, and others took part.

HAEMATO-PORPHYRINURIA.

AT a meeting of the Oxford Medical Society on February 10th with the President, Dr. E. MALLAM, in the chair, Sir A. E. GARROD gave an address on the subject of haemato-porphyrinuria. He began by describing a case shown at Birmingham before the Association of Physicians last year. This was a boy of 5, who suffered from a bullous eruption of the face and exposed parts, which was accentuated in summer, and had led to much scarring. Furthermore, his teeth were pinkish, and he always passed urine of a port-wine colour; a specimen of the urine was shown to the meeting. The case was one of congenital haemato-porphyrinuria, of which only ten or eleven other cases had been described. The lecturer had himself shown some years previously that a trace of haemato-porphyrin was present in normal urine, and that this was slightly increased in diseases of the liver. But, apart from these congenital cases, haemato-porphyrin in obvious amount only occurred in cases of poisoning by sulphonal and similar drugs. He then briefly discussed the chemical constitution of the substance present in the two conditions and its relation to other similar bodies. All cases of haemato-porphyrinuria suffered from hydroa vacciniforme (aestivale), and animal experiments had shown that haemato-porphyrin had the effect of sensitizing living tissues to the action of light. A case was also described in which a pathologist had shown the same sensitizing effect upon himself as the result of a small injection of haemato-porphyrin. The probable explanation of the condition was that a link in the normal conversion of haemato-porphyrin into bilirubin was missing; and that, like most of the other inborn errors of metabolism, this characteristic was a very rare Mendelian recessive. It was interesting that while about two-thirds of the cases occurred in males, sulphonal haemato-porphyrinuria was much commoner in women.

In the discussion that followed, Dr. TURRELL drew attention to the importance which might result, from the point of view of electrotherapy, from the discovery of a substance which would sensitize the tissues to the action of light and heat waves.

The following were among the exhibits shown:

1. Dr. STOBIE: A child with congenital heart disease. Sir A. E. GARROD discussed the pathology of the condition and pointed to the difficulties of the ante-natal endocarditis, as well as the maldevelopment theories.

2. Dr. STOBIE: A case of aortic stenosis in a discharged soldier. This patient had a definite thrill over the aortic cartilage, and the systolic murmur in the same region was conducted into the vessels of the neck.

3. Dr. MALLAM: A case of pityriasis rosea. The diagnosis from secondary syphilis and the treatment were discussed.

4. Dr. W. T. COLLIER, junr.: Specimens illustrating two cases of embolism of the superior mesenteric artery. One had occurred in an oldish man with a fibrotic heart and a thrombus in the left ventricle, and the other in a younger man with subacute bacterial endocarditis. Both cases had been diagnosed as acute intestinal obstruction. Mr. DODDS-PARKER quoted a similar case due to thrombosis following syphilitic endarteritis.

SUTURE OF THE SCIATIC NERVE.

A MEETING of the Section of Surgery of the Royal Academy of Medicine in Ireland was held in the Royal College of Surgeons on February 3rd, with Sir WILLIAM I. DE C. WHEELER in the chair.

Mr. R. A. STONEY reported a case of division of the left sciatic nerve sutured by him four and a half months after a gunshot wound of the buttock received in 1917. The ends were separated by an interval of over one inch and the lower end carried forward into the muscles. Both ends were freed, freshened, and sutured with fine silk. Sensation had completely returned, even for light touch. There was still one inch of wasting of the thigh, and one and a quarter inches wasting of the calf. Movements of the knee were full and strong. Plantar flexion of the ankle and toes was strong, but there was no voluntary power of inversion, eversion, or dorsiflexion of the foot or toes, though the muscles of the anterior tibio-fibular and peroneal regions appeared well developed. The patient had given up wearing a drop-foot support for the last three years; he was able to walk several miles; occasionally he was troubled with blisters on the great toe, but this had been less marked recently. It was not till two years after operation that a slight contraction of the calf muscles could be felt on attempted movement of the ankle.

Mr. M. DOCKRELL had noticed that in many cases of foot-drop the tibialis anticus had been over-developed in comparison with the extensors of the toes, causing a tendency to inversion of the foot. Mr. A. CHANCE asked if this patient took special pains to keep his foot warm; warmth often prevented ulceration in these cases, as in infantile paralysis. Mr. MCCULLAGH found that after sciatic suture recovery was often favourable at first; then the tendo Achillis shortened and might require tenotomy. Mr. STONEY, in reply, said that the patient had worn a splint for a long period after operation, but had then refused to continue its use. This accounted for the laxity of the extensor group. He thought that ulceration of the sole of the foot was due to chilblains, as there was good sensation in this area.

Sir W. I. DE C. WHEELER showed two cases with stiff meta-carpo-phalangeal joints treated by Verrall's splint. In one case the man was still wearing the splint and extension tapes. In the second almost complete function was restored.

Mr. H. STOKES showed a case of myositis ossificans of the brachialis anticus. The patient had been wounded by a bomb splinter and afterwards kicked by a horse. Repeated attacks of inflammation occurred, leaving much scarring. A piece of bone, 2 in. by 3/4 in., was removed, but the *x*-ray photograph taken after the excision showed persistence of a dense shadow at the site of operation. Mr. W. PEARSON thought that the kick was responsible for the condition, as myositis ossificans was uncommon after gunshot wounds.

Mr. A. BLANEY showed a large spleen successfully removed from a case of haemolytic jaundice of the familial type. The fragility test was positive with saline at 0.6 per cent. dilution, and was unaltered by operation; there were notches in the anterior border of the spleen.

Mr. W. C. STEVENSON reported the results of a year's work with radium emanation, with a summary of 160 cases. Sir W. I. DE C. WHEELER, Dr. T. KIRKPATRICK, and Mr. W. PEARSON spoke of the excellent results obtained by Mr. Stevenson in cases they had sent him, and considered that he claimed too little for this mode of treatment. Dr. KIRKPATRICK instanced a case of chronic syphilitic enlargement of the tongue with induration, which was the cause of great pain. Complete excision was considered; antisyphilitic treatment gave no relief, but the radium treatment almost immediately relieved the pain. Sir W. I. DE C. WHEELER referred to the improvement in inoperable prostatic cases. Inoperable cancer of the rectum, too, sometimes became operable after radium treatment. Dr. M. HAYES spoke of the danger of producing telangiectasis in effecting depilation by means of radium.

Mr. W. PEARSON showed a case of a boy where necrosis of the proximal phalanx had left a flail thumb. A piece of rib was grafted between the metacarpal and the distal phalanx, resulting in a stiff but opposable thumb; the grip was good. Radiograms of the thumb were shown. Mr. MCCULLAGH said that he had transplanted an index finger to replace a lost thumb. The patient had afterwards complained that though the thumb was movable, it was too weak to allow him to use it for heavy labour, and requested its removal. This operation should be reserved for cases carefully selected in regard to occupation.

DEMONSTRATION OF ARTIFICIAL LEGS.

AT a meeting of the Edinburgh Medico-Chirurgical Society on March 1st, Sir ROBERT W. PHILIP presiding, Mr. C. W. CATHCART, F.R.C.S., showed a number of maimed soldiers wearing artificial legs, demonstrating in each case the level of amputation, the artificial limb that had been fitted, and a walking test. Before the war artificial limbs had been stereotyped, and little progress was being made; but the war had stimulated improvement. On the whole the best artificial legs now made were those of the American Rowley firm. Previous experience had shown the difficulty of fitting an artificial appliance to a Chopart amputation, and though the latest model was a considerable improvement, this amputation was inferior to the Syme amputation. The former reputation of the Syme operation had been confirmed by the late war, and the new type of leg suitable for this amputation was lighter and less cumbrous than the old. Amputation a little higher than the Syme nearly always gave trouble; a patient was shown in whom re-amputation at a higher level was found necessary and had given a good result. Where, therefore, the Syme operation was not available, amputation a little below the middle of the leg should be performed. Amputation a little below the knee, leaving a short stump of tibia about four inches long, had been condemned by the War Office memorandum. But he disagreed, for this operation retained the attachments of the thigh muscles below the knee and so secured the muscular control of the knee-joint. Even if the leg stump were less than four inches in the bent position, it provided a good support, besides retaining the great benefit of muscular control. Disarticulation at the knee-joint had also been officially condemned; but, using a leather bucket in the artificial limb, he had had satisfactory results with it; and in his experience it was a better operation than the Gritti-Stokes, the stump of which bore the weight well only in a few cases. A better operation than either disarticulation at the knee-joint or the Gritti-Stokes operation was amputation of the thigh at the junction of the middle and lower thirds. Patients illustrating these various sites of operation were shown; also two of amputation at the hip-joint or immediately below. In these higher operations the Rowley device of a pulley and a cord passed over the shoulder was demonstrated; by this the man as he walked hitched his shoulder (an imperceptible movement) and so produced an artificial extension and control of the knee. He finally demonstrated the Beaufort artificial limb, introduced many years ago by Count Beaufort, but which had remained almost unknown and unused in this country until now. In walking with this the patient had no movement, either at knee or ankle, and yet a smooth progression was achieved by rolling over a curved sole. This artificial limb had the simplicity of genius; it was effective, it was much lighter, and it was very much cheaper than other artificial limbs.

Professor F. M. CAIRD, speaking of the pendulum of fashion in surgery, mentioned how the Syme amputation stood high in credit in America after the Civil War, had thereafter fallen into disrepute, but had after the recent war recovered its former position. He recalled Mr. Cathcart's early and unsuccessful advocacy of the Beaufort limb; he was glad that he had now been able to demonstrate its value. Sir DAVID WALLACE said that the late Professor Annandale was more concerned in getting a good stump than in saving an inch or two of length, and this was a sound principle. Another point of importance was to keep the stump in good condition by a provisional limb until the permanent limb could be fitted. He had admired the walking of these patients over a smooth floor; but how did they get on over a rough or a sloping surface? He quoted the case of a patient of his own who, possessing both the old-fashioned peg leg and an artificial limb, preferred the former as more generally effective. Mr. CATHCART, in reply, said he did not disapprove of the peg leg, but its disadvantages were that it sank in mud or soft ground, that it wore out more quickly, and also made it more difficult for a man to find and keep employment than the artificial limb.

Internal Strangulation of the Bowel.

Professor F. M. CAIRD presented an analysis of twenty-three cases of internal strangulation of the bowel caused by bands, adhesions, and kinks. The cases were consecutive and covered a period of twenty years; fifteen were male and eight female, and the average age was 40; there were eleven deaths. Dealing with the symptoms and their comparison with those of

strangulated hernia, he spoke of the difficulty of diagnosis. It was fatal to delay until diagnosis could be made accurate; and it was very important that the general practitioner should send these cases earlier to the surgeon for exploratory laparotomy. He had divided his cases into the following groups: Bands of fibrous cords allowing herniation and then strangulation of a loop of bowel (two cases); bands producing a solitary constriction (nine cases); multiple constrictions, generally by omental tags which often had become unloosed at the operation (three cases); a mixed group, adhesions alone, or adhesions combined with constricting bands (eight cases). In fifteen cases the site of obstruction was the ileo-caecal region. Treatment might be very simple, consisting merely in division or release of the constricting band; but in the cases of difficulty it was directed first to the constricted area, and next to the distended proximal bowel. Various procedures—invagination of a damaged patch by Lembert sutures, enterotomy, enterostomy, enterectomy with primary suture or Paul's tubes—were discussed. It was very difficult to give general rules, and each case must be dealt with on its merits. But when he was doubtful of the vitality of the constricted area, or of the peristaltic vigour of the proximal bowel, he advised enterectomy, first dividing the bowel between clamps and freeing the mesentery; next carrying this length of intestine over the flank and free of the peritoneum, and thoroughly emptying the proximal bowel; then dividing above and performing an end-to-end suture.

Sir HAROLD STILES said that the high mortality in these cases was not the fault of the surgeon, and could be reduced by the general practitioner sending the patients sooner to hospital. The results were better where the bowel did not require enterostomy but could be put back. In doubtful cases his method was to empty the proximal bowel by taking a long loop of intestine well out of the abdomen and over the flank, tilting the patient and doing enterotomy, thus avoiding soiling of the peritoneum. Mr. D. P. D. WILKIE said that experimental research showed that the toxic products in the distended bowel were not bacterial toxins, but proteoses and toxic products of digestion. The cases that died had distended floppy jejunal coils, showing the necessity of a thorough emptying of the small intestine from the duodenum downwards in every case, and reserving enterostomy for the late and severe cases.

TREATMENT OF HYPERTHYROIDISM.

A MEETING of the Liverpool Medical Institution was held conjointly with the Manchester Medical Society on March 2nd, the President, Dr. J. HILL ABRAM, in the chair.

Professor G. R. MURRAY of Manchester read a paper on the treatment of hyperthyroidism and exophthalmic goitre. He stated that the cases in which hyperthyroidism occurred might be divided into three groups: (1) Simple hyperthyroidism, (2) toxic adenoma with hyperthyroidism, (3) exophthalmic goitre. The determination of the basal metabolic rate was helpful in determining the severity of the malady and the progress of treatment. In simple hyperthyroidism surgical treatment was not required, as medical treatment sufficed. In toxic goitre partial thyroidectomy was required if the trachea was compressed or if the toxic symptoms were marked. In mild cases, or in those in which operation was contraindicated, the hyperthyroidism could only be treated by medical means. In exophthalmic goitre medical treatment should be tried for six months. This consisted of rest, suitable diet, medicinal treatment with the use of *x* rays or radium. The importance of diet had been shown by the work of Dr. Chalmers Watson, Colonel McCarrison, and Professor and Mrs. Mellanby, though we could not without further evidence assume that these experimental results could be immediately applied to the treatment of the malady in man. The chief difficulty arose in selecting those moderate and severe cases most suitable for surgical treatment. The advantages were: (1) The saving of time by the rapid reduction of the hyperthyroidism and the relief of symptoms; (2) the diminution of the risk of injury to the myocardium; (3) the complete and rapid recovery in some cases. The disadvantages were: (1) The risk to life; (2) the uncertainty of the ultimate result owing to the difficulty in determining the extent of operation suitable in each case; (3) the tendency to relapse a year or more after operation.

Mr. GARNETT WRIGHT of Manchester read a paper on the surgical treatment of gastro-jejunal ulcer. After a short review of the theories concerning the causation of jejunal ulcer in which the persistence of the original cause of the ulceration was emphasized, he read a short account of seven cases which had come under his care. The methods of surgical treatment adopted were classified under the following heads: (1) Local excision of the ulcer; (2) undoing the gastro-enterostomy and the formation of a fresh anastomosis; (3) partial gastrectomy; (4) undoing the gastro-enterostomy and restoration of the normal channel if necessary by a plastic operation. Of these methods, the last was considered to hold out the best prospects of a permanent cure.

Dr. J. GRAY CLEGG of Manchester read a paper on visual fields in lesions of the nervous system. Of 20,000 private patients he had made a charted record of the fields of some 900 individuals—that is, about 4.5 per cent. of all patients. He confined his attention to those connected with affections of the nervous system. After showing slides illustrating the visual paths and centres, charts of the defects noted in papilloedema as such, those in primary optic atrophy and retrobulbar neuritis were exhibited. There were several diagrams of the results of trauma of the optic nerve, of which two showed entire loss of an altitudinal half of the field, one a central absolute, and another a paracentral absolute scotoma. Various effects of pituitary disease were described. He also produced hemianopic fields; those of right-sided loss were associated with mind blindness in one and word blindness in two. Quadrant anopsia was shown twice, once of an inferior and once of a superior type. He had also come across one case of hemichromatopsia and word blindness. Another remarkable field presented a small remaining central area of sight after a left hemianopsia in 1903 and a right hemianopsia in 1911. An interesting case was that of a patient with inferior altitudinal hemianopsia affecting both fields. One illustrated the changes in a case of tumour of the left auditory nerve. Lastly, the peculiarities of fields of vision in the psychoneuroses were exhibited.

Reviews.

BLAND-SUTTON'S "TUMOURS."

THE first edition of Sir JOHN BLAND-SUTTON'S *Tumours, Innocent and Malignant*,[1] appeared as long ago as 1893. The seventh edition, which has just been issued, retains the fascinating interest and personal touch of the first. Another attractive feature that has always characterized this work is the broad outlook, the product of the author's early studies on comparative pathology. One of the difficulties attendant on keeping a popular book up to date—and this, it need hardly be said, has been efficiently done—is to prevent the size from becoming unwieldy. The new volume contains sixteen pages more than the previous edition and the same number of figures, but twenty of these illustrations have been changed, so that, in spite of alterations necessitated by recent research, the size and general character of the volume remain much as before.

A noticeable change, however, is the omission of the chapter on endotheliomas, the contents of which, such as the mixed tumours of the salivary glands and psammomas, are dealt with elsewhere; the latter appear under the heading of epithelial tumours of the meninges, in a chapter which occupies the position in the book previously given to the consideration of endotheliomas. Sir John Bland-Sutton, as our readers know from the lecture published in February, considers psammoma to be a compact cluster of arachnoid villi infiltrated with cholesterol, and, like a calcified fibromyoma of the uterus, a dead tumour, though it generally wrecks the life of the patient by damaging the brain or spinal cord. The author thus appears to share the view of Dr. G. W. Nicholson—among others, it was the opinion, very vigorously expressed, of Professor Sharpey, the "father of British physiology"—that the term endothelioma should be consigned to oblivion, and it is perhaps for this reason that the question is not discussed, though the terms perithelioma and endothelioma are just mentioned in connexion with some growths of the breast and of the choroid coat of the eye respectively.

[1] *Tumours, Innocent and Malignant.* By Sir John Bland-Sutton, LL.D., F.R.C.S. London, New York, Toronto, and Melbourne: Cassell and Co. 1922. (Demy 8vo, pp. 806; 383 figures. 30s. net.)

INFECTIVE DISEASES.

OF the thirty-two volumes of the *Traité de Pathologie Médicale et de Thérapeutique appliquée*, edited by ÉMILE SERGENT, RIBADEAU-DUMAS, and BABONNEIX, the fourteenth to appear is that on *Infections à germe connu*,[2] containing sixteen articles by Professor Hutinel and seventeen collaborators. Other volumes of this series on parasitic and on unknown infections, on tuberculosis and on syphilis have already been published. The present instalment contains articles on a few tropical diseases, such as yaws, plague, and cholera, but it would seem more convenient for the reader to have had all these diseases collected together into one or more volumes.

In an introductory article Hutinel and Darré give a general sketch of the problems of infection, such as immunity, the clinical manifestations, which are divided into the general, local, and visceral symptoms, and specific treatment. The typhoid infections are considered in forty-seven pages by Lenglet, Ayrignac, and Brulé, with a note on psittacosis and the salmonelloses; the group of infections included under the salmonelloses, after Salmon, who, in 1886, described the first of them, includes paratyphoid B, Danysz's virus, the septicaemia of calves, and others. Philibert is responsible for the articles on septicaemias of various kinds, including meningococcaemia, and on facial erysipelas; Fochier's fixation abscess, induced by the subcutaneous injection of 2 c.cm. of turpentine, has given good results in septicaemia, but in some instances suppuration does not follow this injection and then the outlook is particularly dark; the intravenous injection of specific serums and vaccines is firmly discountenanced. In the section on cerebro-spinal fever (Baur of the Val-de-Grâce) special attention is directed to the untoward effects of intrathecal injection of serum—namely, seric meningitis—in which the cerebro-spinal fluid, though containing pus cells, is free from meningococci, and anaphylactic manifestations, which fortunately are rare and should with care not occur. Lemierre gives a comprehensive sketch of tetanus, and naturally refers to its occurrence in the great war. Writing on Malta fever, H. Roger of Marseilles says that, as the British Government protested against this name for a disease that is far from being confined to that island, the Académie de Médecine of Paris has proposed the names melitosis, or preferably melitococcaemia. As regards the specific treatment, vaccines are recommended for the afebrile periods of the subfebrile forms and serums for cases with high fever and acute paroxysms.

In a copiously illustrated article on leprosy Ameuille describes and figures the early evidence, pointed out radiologically by Colombier, of bony atrophy of the terminal phalanges of the toes; he speaks with wise reserve of the therapeutic value of Deycke s nastine or the ethereal extract of the non-pathogenic *Streptothrix leproides* cultivated from a leproma. The volume concludes with accounts of some tropical diseases, such as Oroya fever and verruga. In the well-illustrated article on yaws the condition of goundou, originally described in 1882 by the late Professor A. Macalister as "the horned men" of Africa, is included, as urged by Chalmers and by Nell, among the tertiary lesions.

The volume can be confidently recommended as a clearly written and up-to-date summary of the infections of known origin.

WORMS AND APPENDICITIS.

DR. REINDORF'S monograph[3] presents an account of his observations, made during the past ten years, of several hundreds of cases of appendicitis, in which the appendix contained oxyuris. His material is derived chiefly from civilian hospital practice, but also from the German army during the war. It contains evidence of much painstaking research, and of careful and original thought. The reader gains the impression that while Dr. Reindorf is possibly influenced by enthusiasm as well as facts in his general conclusions, his subject probably deserves more attention than it has received.

The first section deals chiefly with the literature relating to the occurrence of intestinal worms in the appendix. It is interesting, and apparently very complete.

In the second section the histo-pathology of primary ulcers caused by the oxyuris is accurately described, and the assertions in the text are well borne out by excellent microphotographs of his preparations. He shows that where the parasite lies in contact with the epithelium of the mucous membrane of the appendix an ulcer develops. This he attributes chiefly to toxins produced by the worm, and partly to its mechanical pressure and boring action. The occurrence of ulceration is dependent on a serological reaction, of anaphylactic nature, between host and parasite. These defects are quite typical, and can be attributed with certainty to oxyuris, even when the parasite is not present at the time of examination. The worm may penetrate deeply into the lymphatic tissue, and even through the muscular and serous coats, though the latter occurrence is extremely rare. These "oxyurendefekte" have been regarded by some as artefacts. Dr. Reindorf proves they exist during life, chiefly on the evidence of epithelial regeneration. The trichocephalus also bores into the mucous membrane of the appendix. The ascaris fills up the appendicular lumen and produces extensive epithelial lesions, presumably by toxic action, but its presence in the appendix is extremely rare.

The third section is devoted to the clinical aspect of the subject. Pain, in its mode of onset, character, duration, and sites, presents no features distinguishing it from that produced by the commonly recognized types of appendicitis. It is considered to be due to the action of the oxyuris toxin on the vagus and sympathetic nerve endings in the appendicular wall; it may be very severe with a minimum of anatomical disturbance. If the appendix alone is infected, appendicectomy causes the pain to disappear; but if the colon is also infected it may persist. The temperature in these cases exhibits no characteristic features; it is extremely variable in relation to the severity of the lesion, as in all types of appendicitis. The presence of worms in the appendix does not always cause symptoms (13 per cent.), and the symptomless oxyuris carrier is compared to the carrier of potentially pathogenic organisms. Dr. Reindorf believes that the individual susceptibility in both cases, and the varying susceptibility of an individual from time to time, are referable to serological conditions. The differential diagnosis is discussed briefly, but it is suggested that most "obscure" abdominal conditions—for example, mobile kidney, mobile caecum, hysterical pains, etc.—are to be traced to oxyuris infection. Gross infection constitutes only 4 per cent. of all cases. In the remaining 96 per cent. there are only a few worms—often only one. The male is practically invisible when embedded in mucus. To these conditions the author attributes the almost universal failure to observe the parasite except in the rare cases of gross infection. This section includes tables of cases, setting forth the main points, as well as detailed histories.

In the fourth section the pathogenesis of appendicitis is discussed. All appendicitis, with the exception of the superficial catarrhal form, is, the author thinks, due to primary ulceration, followed by secondary bacterial infection. The oxyuris is considered to be by far the commonest cause of primary ulceration, while trichocephalus is variable and ascaris very uncommon. Primary ulceration may be due to tuberculosis, typhoid fever or dysentery, concretions, foreign bodies, or rare parasites such as *Distomum haematobium*, but all these are uncommon as compared with oxyuris. The occurrence of primary infection without antecedent ulceration is emphatically denied.

Two types of oxyuris appendicitis are recognized: (*a*) The superficial catarrhal form, due to the toxic products of the worm alone, causes desquamation of the epithelium, transudation of serum, leucocytic infiltration, and toxic haemorrhages in the submucous tissue; (*b*) secondary bacterial infection of ulcers caused by the worm may lead to consequences varying between chronic fibrosis and perforation, with general peritonitis. In many cases which recover spontaneously such conditions as kinks, adhesions, and stenosis result, and lead to further inflammatory developments later; but Dr. Reindorf insists that in almost all these cases oxyuris infestation is the ultimate cause. In 50 to 60 per cent. of his cases operated on for appendicitis in children the appendix contained oxyuris, in adults 25 to 30 per cent., while in a much higher percentage evidence of worm ulcers and remains, such as portions of cuticle or parasite's eggs, showed the true causal factor. Dr. Reindorf thinks the worms often leave the appendix on account of inflammatory changes and raised local temperature. An excellent account is given of the morbid anatomy of the infected appendix. A rare case of actual perforation by the parasite is cited. The spread of infection from the primary ulcer by the lymph stream is

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[2] *Traité de Pathologie Médicale et de Thérapeutique appliquée.* Publié sous la direction de Emile Sergent, L. Ribadeau-Dumas et L. Babonneix. Tome XV: *Infections à germe connu.* By various writers. Paris: A. Maloine et Fils, 1921. (Demy 8vo, pp. 625; 104 figures. Fr. 30.)

[3] *Die Wurmfortsatzentzündung.* Von Dr. A. Reindorf. Berlin: S. Karger. 1920. (Roy. 8vo, pp. 244; 52 figures.)

discussed, as is the occurrence of intramural abscess. The infective agent may not be arrested before the meso-appendix is reached, and the unexpected onset of post-operative peritonitis or wound infection, where an apparently normal appendix has been removed, is explained by the division of infected lymphatics. Appendicitis due to foreign bodies is estimated at 1 to 2 per cent. The appendix normally fills along with the caecum and is quite capable of emptying itself, but such bodies as fish-bones, bristles, or enamel splinters may stick and cause ulceration and secondary infection. Dr. Reindorf believes that a concretion never causes pain. Very rarely it may cause direct pressure ulceration, or indirect ulceration by obstruction, followed by retention of secretion and empyema. The very common association of oxyuris with concretions (50 per cent.) suggests that there is an etiological relationship—the fibrosis induced by a chronic worm infection favouring the development of a concretion.

In the fifth section percentage figures are given of the incidence of oxyuris, trichocephalus, and ascaris, derived from *post-mortem* examination of soldiers of the European nations engaged during the war. Statistics are quoted also from the literature of those he had not the opportunity to examine. Oxyuris was present in 9 to 25 per cent. of all cases. Of all infected cases the parasite was found in the appendix in 59 per cent. Trichocephalus infection was more common, but its presence in the appendix relatively less frequent. Ascaris infection was common, but it was not observed in the appendix. On the ground of the high percentage of oxyuris infection among soldiers, Dr. Reindorf prophesies a considerable post-war increase in appendicitis.

In the sixth section some suggestions as to the prophylaxis of appendicitis will be found. More research is required as to the action of anthelmintics, and as to whether they reach worms in the appendix. The extreme difficulty of clinical diagnosis is discussed. An active campaign against the oxyuris is recommended, and it is thought that a great advance would be effected if the importance of the question were generally recognized by the profession. Much could be done by the medical school inspector, and pamphlets dealing with the subject might be circulated among parents of school children. It is emphatically stated that in the presence of symptoms of appendicitis, even of a mild degree, anthelmintic treatment is unjustifiable, and early operation is strongly advocated.

It is unfortunate that this excellent material has not been presented in a more accessible form. The sequence of thought in the book is bad—one might almost say it is not arranged. There is excessive and quite unnecessary repetition. One regrets that so much space is devoted to the discussion of priority of publications, and to the detailed histories of various debates in which the author has been engaged during the past ten years. A scientific monograph is not a fit place in which to air his personal grievances against his opponents; and his criticism of their opinions often assumes an unpleasantly personal character. The book is interesting and suggestive, but it will tax the reader's patience considerably.

GRAVES'S DISEASE.

DR. CASSIO DE REZENDE has published in a small volume an interesting little essay on the etiology and treatment of Graves's disease,[4] which he presented to the National Academy of Medicine of Brazil in support of his claim to be elected a corresponding member. He first discusses the various theories which have been proposed to explain the pathogenesis of the disease, such as bulbar neurosis, hyperthyroidism, stimulation of the sympathetic system, pluriglandular disturbance, and intestinal intoxication; he dismisses all of them as unsatisfactory, and advances the hypothesis that it is an infection. This theory, he thinks, explains almost if not all the symptoms, and reconciles certain apparently contradictory facts. Graves's disease he describes as a chronic morbid process, presenting intervals of quiescence which are not infrequently complete, alternating with periods of acute exacerbation. How, he asks, is this fact to be explained except on the supposition of an internal parasite which, in the course of its evolution, also presents phases of attenuation and increased virulence? The occurrence in Graves's disease of ophthalmoplegia similar to that met with in syphilis, diphtheria, influenza, and lethargic encephalitis, and the occasional presence of fever like that observed in syphilis, are further manifestations of infection. Moreover, the numerous lesions of different kinds found in the various organs after death and the changes in the blood are, he thinks, precisely those met with in infectious processes. The successful action of two drugs, arsenic and quinine, whose only point of resemblance is their parasiticidal action, is used as a further argument in favour of the infective origin of Graves's disease. The author concludes by advocating the use of antimony salts in the form of tartar emetic intravenously, as they have been found of even more value than arsenic in the treatment of protozoan infection. Dr. de Rezende shows a remarkable familiarity with modern English medicine, which is as gratifying as it is rare in foreign writers.

[4] *Ligeiras reflexoes sobre a etiopathogenia e o tratamento da molestia de Graves.* Memoria apresentada á Academia Nacional de Medicina pelo Dr. Cassio de Rezende. Guaratingueta, S. Paulo, Brazil. 1921. (Demy 8vo, pp. 40; 5 illustrations.)

TREATMENT OF FRACTURES.

FOR the new edition of Mr. E. W. HEY GROVES's book, *On Modern Methods of Treating Fractures*,[5] the text has to a great extent been rewritten. The bulk of the book has thereby been greatly increased, but its value has also been increased. Since 1916, when the first edition appeared, experience of the treatment of fractures, more especially of the various complicated injuries following gunshot wounds, has grown greatly. In the first edition perhaps undue prominence was given to the various forms of open operation, to the exclusion of the more generally applicable methods of extension and splinting. In the present volume no claim is made for any one system, but it is clearly shown that the various methods of treatment should be used as occasion requires. Perhaps the most interesting section of the book is that which embodies the author's Jacksonian essay on bone-grafting. It gives a digest of the work of the various pioneers, and describes much original work carried out by the author himself. The increase in the size of the book is in part due to the introduction of detailed accounts of the treatment of the fractures of the upper and lower limbs. It should perhaps be pointed out that no systematic account is given of the various fractures themselves and their displacements; this knowledge, it is presupposed, has already been gained from clinical experience or from one of the various textbooks on surgery. It is satisfactory to find that the author condemns the almost criminal practice of plating a septic compound fracture.

Perhaps the outstanding fact to be learnt from the book is that in order to get good results in the operative treatment of fractures, either by plating, bone-grafting, or pegging, the operator must be a really skilled carpenter. It would almost seem necessary for the surgeon to spend at least a year in a workshop gaining skill as a cabinet maker! However this may be, it is right to lay emphasis on the point that complicated operations on fractures are not to be undertaken light-heartedly. Many of the procedures, which in the author's hands give excellent results, require such technical skill that they will probably never gain favour with the general surgeon. Possibly the day may come when the treatment of the more complicated fractures will be undertaken by a "fracture specialist."

The book is excellently illustrated with diagrams and reproductions of skiagrams. It should prove of great interest as a scientific and up-to-date treatise on the subject.

[5] *On Modern Methods of Treating Fractures.* By E. W. Hey Groves, M.S., M.D., B.Sc.Lond., F.R.C.S.Eng. Second edition. Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent, and Co. Toronto: The Macmillan Company of Canada, Ltd. 1921. (Roy. 8vo, pp. xix+435; 295 figures. 30s. net.)

A POCKET SURGERY.

MR. D. C. L. FITZWILLIAMS's new book[6] is a frank attempt to confine the whole realm of examination surgery within a small compass. It is possible that his book may become famous, as did the "Breeches" and "Treacle" Bibles, from a remarkable statement. On p. 17 it is said that anthrax has lately "been imported from Japan very largely in the thistles of shaving brushes"!

The book has a good deal to recommend it, as it is more than an abstract of some well-known textbook. It bears the impress of a vigorous personality, and, brief though the descriptions necessarily are, the author succeeds in interesting his readers.

[6] *A Pocket Surgery.* By D. C. L. Fitzwilliams, C.M.G., M.D., Ch.M., F.R.C.S.Edin. London: Edward Arnold. 1921. (Cr. 8vo, pp. 348. 10s. 6d. net.)

All such manuals as this are apt to leave the reader a little breathless after his rapid chase from cover to cover. Students, however, seem to like their cram books just like that, and we can assure them that Mr. Fitzwilliams will lead them on no false scents.

NOTES ON BOOKS.

THE new number of *Brain*[7] (Vol. xliv, Part IV) is larger than usual, containing, as it does, over 240 pages, without counting the title-page and index to the volume. It opens with a paper by Professor Harvey Cushing, of Harvard, on the field defects produced by temporal lobe lesions. It contains also a long paper by Dr. George Riddoch and Dr. E. Farquhar Buzzard on reflex movements and postural reactions in quadriplegia and hemiplegia, with especial reference to those of the upper limb; a paper by Dr. Ramsay Hunt, of New York, on primary atrophy of the dentate system (a contribution to the pathology and symptomatology of the cerebellum); and one by Dr. F. M. R. Walshe, of the Medical Unit, University College Hospital, on disorders of movement resulting from loss of postural tone, with special reference to cerebellar ataxy. The proceedings of the Section of Neurology of the Royal Society of Medicine are reported, and there are the usual notices of recent publications.

The eighth edition of Mr. J. F. BINNIE'S *Operative Surgery*[8] differs only slightly from the seventh, which appeared five or six years ago; several additions have been made to the chapters on thoracic and plastic surgery. Perhaps the most noticeable feature of the book is the space devoted to the rarities and complications met with in operative practice. The volume is a mine of information; no operative measure ever made use of seems to have escaped the author's notice. The book is, perhaps, not quite suitable for the junior student, but it should often prove a valuable work of reference in those frequently occurring cases about which nothing can be discovered in the ordinary textbooks.

We have received a number of fasciculi of a German work on diagnostic and therapeutic errors and their avoidance,[9] in which the commoner mistakes made in surgery, medicine, gynaecology, and ophthalmology are recorded and discussed. No single section of the work appears to be complete; it seems to be written for the use of specialists rather than general practitioners of medicine. The full title of only a single fasciculus—that dealing with diseases of the spinal cord and peripheral nerves—is given in the footnote.

The book by Dr. BREGMAN of Warsaw on sleeplessness and its treatment[10] gives a general account of the association of sleeplessness with disease, illustrated by cases quoted from his own practice. The last chapter of the volume gives an account of the many hypnotic drugs that may be used to promote sleep, together with the author's views as to their respective advantages and disadvantages, and contains much information of service to the practising physician.

A few articles by Mr. PIKE, which appeared in the *Practitioner*, have been gathered together to form a little book to which the author has given the novel and arresting title of *Permeating Mastoid Meningitis*.[11] There is nothing perhaps very original except the title, but if the writer succeeds in drawing the attention of practitioners to the most dangerous complication of disease of the middle ear he will doubtless have accomplished his aim. It is to be hoped, therefore, that the book will be widely read.

[7] London: Macmillan and Co., Ltd.; New York: The Macmillan Co. 1921. (Price 6s net)

[8] *Manual of Operative Surgery.* By J. F. Binnie, A.M., C.M.Aberd., F.A.C.S. London: H. K. Lewis and Co., Ltd. 1921. Eighth edition, revised and enlarged. (Roy. 8vo, pp. xvii + 1311; 162 figures. £3 3s. net.)

[9] *Diagnostische und therapeutische Irrtümer und deren Verhütung innere Medizin.* Herausgegeben von Prof. Dr. J. Schwalbe. Elftes Heft: *Krankheiten des Rückenmarks und der peripherischen Nerven.* Von Prof. Dr. R. Cassirer. Leipzig: G. Thieme. 1920. (Sup. Roy. 8vo, pp. 157; 1 figure. M.35.50)

[10] *Die Schlafstörungen und ihre Behandlung.* Von Dr. L. E. Bregman. Berlin: S. Karger. 1920. (Roy. 8vo, pp 141. M 12.)

[11] *Permeating Mastoid Meningitis: A Clinical Note for the General Practitioner.* By J. B. Pike, M.R.C.P., L.R.C.P.Edin. Pristol: John Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent, and Co. 1921. (Cr. 8vo, pp. 24. 1s. net)

THE Instituto storico italiano dell' arte sanitaria was founded in 1920 to promote and organize the study of hygiene along historical lines, and to collect illustrative material in a museum and library. It has begun to issue a *Bollettino*, the first number of which opens with an article by Dr. Capparoni on Giovanni Battista da Vercelli, a nineteenth-century syphilologist. The general secretary of the institute is Dr. Pietro Capparoni, Via del Pozzetto 108, Roma 7.

MEDICINAL AND DIETETIC PREPARATIONS.

Pure Barium Sulphate.

WE have received from the British Drug Houses a specimen of barium sulphate as supplied by them for *x*-ray diagnosis, and have submitted the article to analysis, with results showing that it is a very pure product. By repeated exhaustion of the sample with water or dilute hydrochloric acid no solution of barium was obtained beyond the infinitesimal traces corresponding with the solubility of barium sulphate. It contained no impurity except a trace of alkali sulphate, and the proportion of this did not exceed 0.01 per cent. The protective action of alkali sulphate against dissolution of barium sulphate through the reactivity of the latter would be a valid reason for the sanction of a much more considerable percentage of alkali sulphate.

The material is neatly put up in a case of separate cardboard packages, each package containing four ounces of barium sulphate, the quantity usually required for a single meal; a leaflet gives directions for the preparation of the meal and memoranda on the average time of its passage to the different regions of the alimentary canal. The way in which the product is packed will make it very convenient for keeping a supply in reserve ready for use; barium sulphate stored in this form should prove a safeguard from the dangers of such accidents as have occurred from resort to ordinary commercial supplies.

New Season's Cod-Liver Oil.

Messrs. ALLEN AND HANBURYS have sent us a sample of the new season's cod-liver oil, recently received from their Lofoten factory. It is pale in colour, has little odour, and the fishy flavour is slight. They send us data showing that the acid value is low, and that the iodine absorption figure indicates a high content of unsaturated metabolized fat. They inform us also that the oil has been prepared with a minimum of exposure to conditions favouring oxidation, which, as is well known, are inimical to the preservation of the activity of the fat-soluble A vitamin. The preparation appears, therefore, to be one upon which the profession can rely.

RADIUM THERAPY.

II.

ANNUAL REPORT OF THE MANCHESTER RADIUM INSTITUTE.

A PREVIOUS article on radium therapy, dealing with the work of the London Radium Institute last year, appeared in our columns on March 4th (p. 356). The annual report of the Manchester and District Radium Institute for 1921 covers the work of a year which was regarded as a period of transition, and which has been an important one in the history of the Institute. In the original scheme, which came into effect at the beginning of 1915, there were eight participating hospitals, and their patients were received and treated at the Institute, which worked in premises within the Manchester Royal Infirmary. The work of the Institute steadily increased, and the accommodation at the infirmary was found to be inadequate. Throughout the period of its existence Sir William Milligan has acted as honorary secretary and treasurer of the Institute, and its success has owed much to his enthusiasm. Through the generosity of Sir Edward and Lady Holt, last year a building close to the Royal Infirmary was equipped and furnished as a hospital, and handed over to the committee of the Institute, which was transferred there. In this hospital have been provided thirteen beds, which are used solely for radium treatment, and there are also eight treatment rooms for patients receiving local applications, a well-equipped operation theatre and sterilizing room, research laboratories, a workshop, and other necessary accommodation. This complete hospital for radium treatment, as was noted in our columns at the time, was opened last October.

In his annual report of the Institute for 1921 the radiologist, Dr. Arthur Burrows, states that during the year 783 cases presented themselves, which shows a slight decrease from the previous year, due probably to the changes which have been mentioned. The physicist reports that 526 emanation plates and 1,281 emanation tubes were made during the year. Sixty cases of malignant disease, exclusive of rodent ulcer, were rendered free from signs and symptoms of disease during the year, including four cases of carcinoma of the uterus previously inoperable, which were rendered operable and the operation performed. As 564 malignant cases were treated, these 60 cases represent nearly 12 per cent. of the total number of cancerous patients seen, a proportion which is practically the same as in 1920. The

number of cases of rodent ulcer treated was 71, of which 36 were permanently cured; 24 non-malignant conditions were also cured. The total number of attendances of patients during the year increased from 5,424 in 1920 to 6,167, but this number does not include in-patient treatments.

Dr. Burrows includes in his report an analysis of 2,595 cases which were treated at the Institute between the years 1915 and 1919. This number excludes those who, although examined, did not present themselves for treatment and those who were so very advanced as to be hopeless even for palliative treatment. Of this total, 1,753 were suffering from cancer, 14 from papilloma of the bladder, and 14 from mediastinal tumour. In addition, 267 patients were suffering from rodent ulcer, and 575 cases suffered from various conditions which were usually described as non-malignant, although a considerable proportion of them would, if allowed to progress, have terminated in death. Dr. Burrows states that practically all the cancer cases, except those of cancer of the skin, were inoperable, with the exception of a very small number which were treated by radium for such special reasons as bad general health, failing heart, or diabetes. A certain number of cases of early carcinoma of the cervix of the uterus received prophylactic treatment immediately before operation. Under these conditions 135 of the patients are alive and well to-day, having lived from periods varying from two to seven years; this is equal to just over 7½ per cent. of the cancer cases treated, or 6¼ per cent. omitting cases of skin carcinoma, although a number of these were inoperable. Dr. Burrows points out that about 50 per cent. of the symptomatic cures—which are not claimed as "cures," but are often examples of excellent palliation—annually reported eventually recur.

Treatment of Carcinoma.

In regard to the treatment of carcinoma of the breast, 16 of the cases treated have been well for over two years (2 of them for between six and seven years), and one inoperable case was eventually operated on. More than half of the cases of carcinoma of the breast treated by radium were recurrences after operation. Of the cases of carcinoma of the cervix of the uterus treated, 8 previously inoperable were, subsequent to treatment, operated upon, and 13 have been well for over two years (including 2 who have been well for between five and six years); in a number of cases after the operation the growth of the uterus was found to have completely disappeared. Twenty-five per cent. of the cases of carcinoma of the lip have remained well for over two years, 2 of them for between four and five years. Dr. Burrows considers that carcinoma of the mouth and tongue is not a favourable condition from the radium point of view, owing to the rapid formation of secondary deposits. The use, however, of unscreened emanation tubes has improved results; in 29 of the cases treated the primary growth was caused to disappear, and 7 cases have been alive and well for over two years (one of them for between six and seven years). In carcinoma of the rectum it is uncommon to get a really good result, and palliation is the most that can be hoped for; but one patient has been alive and well for between five and six years, and another more recent case has been treated with success up to the present. Thirty-three cases of carcinoma of the skin, or nearly 25 per cent. of the total treated, have been alive and well for between two and seven years. Carcinoma of the thyroid gland is considered to be a favourable condition for radium treatment, and 4 cases have been well for over three years, 2 of them for between six and seven years. Of the cases of carcinoma of the vulva 4 have been well for over two years, one of them for between five and six years. The burying of unscreened tubes is believed to be the most hopeful method of treatment in these cases at present, but the reaction is apt to be extremely prolonged and painful. All the cases treated have been very advanced ones, and in Dr. Burrows's opinion surgery is likely to be a less painful method of treatment in early cases, while perhaps diathermy may obviate the difficulty in the matter of pain. In abdominal carcinoma, if there is widespread dissemination of the growth little can be hoped for from radium treatment. In two cases of carcinoma of the colon promising results were obtained, one case remaining without signs of growth for two years, but subsequently dying of a recurrence, while the other lived for three years in good health, eventually dying, according to the information received, of cerebral haemorrhage. Carcinoma of the stomach will often diminish in size for a time if tubes are buried in the growth, but no completely successful result has so far been obtained in Manchester.

Treatment of Sarcoma.

In lymphosarcomas the immediate results of radium treatment, says Dr. Burrows, are often brilliant, but usually the disease spreads elsewhere and eventually kills the patient; two of these cases have been alive and well for between three and four years. Of the cases of sarcoma of the nasopharynx two have been alive and well for between six and seven years, and one for between two and three years. Spindle-celled sarcomata react very sluggishly to radium, and prolonged, not too violent, treatment for a long period is necessary. In the end, however, they appear to repay the trouble taken, for the prospect of cure appears to be much greater than in the case of the small round-celled type, which locally, under radium treatment, seem to melt away and subsequently recur.

Treatment of other Malignant Conditions.

Of the cases of endothelioma of the parotid gland, ten have been alive and well for over two years, three of them for over five years. This represents over 30 per cent. of the cases treated, many of them recurrences following operation, and this percentage of cures is so high as to suggest that radium is likely to be the treatment of choice in the future, especially because of the good cosmetic results. Dr. Burrows considers that no surgeon could operate on a case of endothelioma of the parotid gland without the help of radium, either for prophylaxis or in case the operation cannot be completed without destroying the facial nerve.

Most of the cases of papilloma of the bladder were advanced cases, and four of those which were treated have been alive and well for over two years, one of them for between six and seven years.

Of the patients suffering from rodent ulcer, 125 have now been well, after treatment, for a period varying from two to seven years. A very large number of advanced hopeless cases have been treated, but still 50 per cent. of all cases have been cured, and if properly treated recurrence appears to be rare.

Treatment of Non-Malignant Conditions.

Fifty-two cases of exophthalmic goitre are recorded as cured; that is to say, all symptoms and signs of disease have disappeared for over two years, and only one recurrence is recorded. Much patience is needed in the treatment of these cases, for the application of radium is a long process, and the treatment may last from two to three years. The cases of Hodgkin's disease may be divided into those under 25 years of age and those who are middle-aged; the former give excellent results, but the middle-aged cases seem almost hopeless, except for palliation. Perhaps, suggests Dr. Burrows, they may be two different diseases. Keloid and vicious scars nearly always yield to radium treatment, and sixteen such cases have been cured, although some mark must always remain. Radium is stated to cure almost all cases of "spring catarrh," and appears to be the most satisfactory treatment of this disease. Fifty per cent. of the cases of cavernous naevus were cured practically without any mark remaining, and capillary naevi, says Dr. Burrows, can always be made paler, but if treatment is kept on too long telangiectases appear. For excessive uterine haemorrhage radium is stated to be a specific. The Institute records only one failure in this condition, and that patient did not submit to a second application. If by using a small dose the risk of the necessity of a second application of radium is taken, with young women menstruation often returns to normal, and cases are recorded in which they have married and had children subsequently. A good proportion of lupus vulgaris cases, if not too advanced, can also, it is stated, be cured by radium, contrary to general expectation.

THE Calcutta Medical College students recently decided, as a protest against the present Government policy, to suspend duty in hospital and attendance in classes.

IT is reported from Washington that Dr. Hubert Work, president of the American Medical Association, who at present holds the office of First Assistant Postmaster-General, is the probable successor as Postmaster-General of the United States to Mr. Will H. Hays, who is resigning to become the head of the cinematograph industry of the United States at a very large salary.

HOSPITAL POLICY.

III.

THE CONTRIBUTORY SCHEME IN OXFORD.

[DR. WILLIAM COLLIER, honorary consulting physician to the Radcliffe Infirmary and County Hospital, has been good enough to send the following account of the Oxford contributory scheme.]

In the SUPPLEMENT of February 25th appeared a report on the organization of voluntary hospitals, with reference in particular to the reception of paying patients, and the position at the hospital with which I am associated may be of interest in regard to this, although our hospital happens to be in a more fortunate position than most. During the past year the whole finances of the hospital were placed on a better basis by generous support from all classes of the public. The administration and organization of the whole scheme of financing have been revised and greater efficiency and economy in working were effected. The hospital is one of the few in the country that have had a balance in hand on the year, and it appears as though it will not have to ask for any grant from the regional court appointed under the terms of the Voluntary Hospitals Commission. In addition, it must be one of the few hospitals in the country that have taken on a great deal of new work during the year—a maternity home with a resident physician having been added, a new convalescent home equipped, and a preliminary training school for nurses opened. All this has been achieved by the aid of a new scheme of weekly contributions, covering the whole district within range of the hospital. In an area that is mainly agricultural, without large towns, but dotted with prosperous market towns and villages, over £17,000 was raised in the year in twopenny contributions; and in other ways, mainly from the working classes and by entertainments, a total of over £25,000 in new money was received, being an increase of about £20,000 on the previous year's income, the total income this year being just over £41,000.

The report of the council on voluntary hospitals states that in schemes for providing hospital benefit it is undesirable that the hospitals concerned should undertake any insurance risk, or, in other words, undertake to provide hospital benefit when required in return for a periodic payment by an individual or a group of individuals. It goes on to state that the acceptance by voluntary hospitals of insurance risk under any scheme for the provision of hospital benefits would prejudice the primary consideration in the admission of a patient to hospital—namely, the suitability of the case for admission on medical grounds, and also, in the event of the actuarial estimates proving faulty, it would render the hospitals liable to meet outlays for which there was no financial provision. It suggests that in any contributorial scheme, the presence, limitations, or absence of a contractual obligation for the provision of hospital and additional benefits should be plainly stated to the contributors. The scheme at this hospital implies no contract on the part of the hospital to provide such institutional benefit as the subscribers may require. Under its provision a weekly contribution of 2d. exempts the contributors from the patients' payments due from non-contributors. In the case of married people, where the husband and wife each subscribe 2d. a week, their children are also entitled to treatment up to wage-earning age, and from then until they are earning adult's wages each child pays 1d. a week. The children of a widow or widower are also entitled to treatment up to wage-earning age on the 2d. contribution of their parent. Non-contributors are required to contribute towards their maintenance in the hospital, but no payment is required from old-age pensioners or others quite unable to pay.

It is definitely pointed out on the card which is issued to all subscribers of weekly contributions that every case must be accepted by the physician or surgeon of the hospital as suitable for hospital treatment. Contributors are specially requested to bring a letter from their doctors. It is pointed out that it must be clearly understood that only those who, owing to the gravity of their illness, and on account of their financial position, are unable to obtain adequate medical and surgical treatment, are entitled to attend at the hospital. The hospital strives by every means in its power to prevent all abuse, and up to the present we have had only one complaint from a doctor in the area that his practice had been injured. On the other hand, members of the staff are frequently urged by medical practitioners in the neighbourhood to admit patients who are seriously ill or require an immediate operation. We have established 270 hospital aid committees in the villages and thirteen in the market towns. These committees arrange for the collection of the payments and remit them to our hospital once a quarter. We know that we have now some 4,000 helpers, directly interested in our hospital, knowing something of the work it is doing, and most anxious to keep it in full working order. Had we not started this scheme we should have been compelled to close down more than half our beds for want of funds. The question of a staff fund has been carefully considered by the staff and unanimously and emphatically rejected.

IV.

ARRANGEMENTS IN BRISTOL HOSPITALS FOR RECEPTION OF PAYING PATIENTS.

[FOR the following contribution we are indebted to Dr. J. A. Nixon, C.M.G., physician to the Bristol Royal Infirmary, who has had valuable assistance, in checking the information, from Mr. E. C. Smith, the secretary of that institution.]

The Report on the organization of voluntary hospitals and the reception of paying patients, published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of February 25th, will shortly be considered by the Divisions, and then again by the Council before its presentation to the Annual Representative Meeting. The following account of measures adopted last year in Bristol contains data that may be of general interest and prove useful in future discussions. In May, 1921, the Governors of the Bristol Royal Infirmary and General Hospital adopted a scheme for the admission of paying patients to the two voluntary hospitals. The scheme, which came into operation on July 1st, was a uniform one, agreed to by the committees and staffs of both institutions after a series of conferences held in common.

All in-patients with the exception of really necessitous cases should be asked to pay one guinea per week towards the cost of their maintenance. All out-patients and casualties, except the necessitous poor, should be asked to pay a registration fee of sixpence per attendance, and also an extra sixpence for medicines or dressings when supplied, and a special charge should be made for treatment by *x* rays, electricity, massage, etc., according to cost.

Each institution should appoint its own almoner or inquiry officer. The medical staffs, realizing that the adoption of this scheme involved a fundamental change in the conditions under which they would be working, made a definite offer to alter the terms of their service, and this offer being accepted by the governors constitutes a new and definite contract between the governors and the staffs. The offer was as follows:

In order to enable the governors to bring into operation the proposals for the admission of paying patients, the honorary staff desire to offer their gratuitous services to all patients who are found after inquiry by the almoner to be unable to pay more than the cost of their maintenance. But in the case of patients whose payments are defrayed by public authorities or approved societies the honorary staff will attend and treat such patients in consideration of an agreed percentage of the gross payment received by the hospital being allocated to and paid into a fund which shall be administered by the honorary staff.

The plan has been working for a little more than six months. The effects at the Royal Infirmary have been analysed carefully. As regards the admission of in-patients, no perceptible variation has been recorded; the number of out-patients may have declined a little, but as previous records deal with a full year instead of six months, the secretary is inclined to think that there will be no material alteration in a year's totals. The casualties and emergencies have, on the other hand, dropped by one-fifth, an effect which the secretary considers is directly due to the small charge made, but he points out that formerly people would come in to have the most trifling cuts and abrasions dressed, and it is their abstention which has reduced the figures.

The financial workings of the scheme are worthy of note. The average stay of each in-patient was two and a half weeks, and the number of in-patients was 2,684; if each of these patients had paid one guinea a week whilst in hospital a sum of 6,710 guineas (£7,045) would have been received. The actual number of in-patients who paid 1 guinea was 456; 330 paid from 10s. to £1; 494 paid under 10s.; and 780 were passed free. From out-patients, if one shilling had been paid for each attendance the sum of £4,325 would have been received (29,000 out-patients attended, with an average of three and a half attendances per case).

The actual sum received from both in- and out-patients was £2,968 instead of £11,375. The conclusion is that only one patient in five was found by the almoner to be in a position to pay the full sum asked for. Smaller amounts were accepted than the full sum, but it must be observed that the one guinea per week in-patients are asked to contribute is only about

one-third of the actual cost of maintenance. The almoner at the Royal Infirmary is an experienced lady, well qualified for the work, whose competence to assess a patient's circumstances no one questions. It seems clear that the amount which patients can contribute to the cost of hospitals is so little as to provide no solution of the financial difficulties with which they are faced.

Another result must be mentioned. Formerly considerable sums were paid by collections among works employees. The money when collected was paid over to the hospitals. Now in many instances the money is held in a "works fund," and expended as occasion arises to defray the hospital charges of such contributors to the fund as chance to need hospital treatment. There has not yet been time to say whether the hospital gains or loses by this arrangement.

But, looked at from any point of view, there appears no prospect that patients' contributions can furnish adequate financial support for hospitals unless the hospitals are diverted from their original object of catering for the poor and are open only to those who can pay for admission.

Other voluntary hospitals in Bristol are making trial of the same scheme. The Bristol guardians have also introduced a plan for the admission of paying patients to the Poor Law hospital at Southmead. The following rules are in force:

Admission of Private Patients to Southmead Infirmary.

Paying patients may, at the discretion of the Infirmary Committee, be admitted for treatment or operations when the accommodation there admits.

Cases only will be entertained which need infirmary treatment, and which, on investigation, are found to be quite unable to pay the rates of charge made at private nursing homes or other available institutions.

Applicants must, in the first instance, produce a certificate of recent date from a medical man who has been attending the case within one month from the date of the application, such certificate to fully state the nature of the illness and, in the case of an operation considered necessary, the nature of the operation.

The weekly charge for ordinary treatment will be £2 2s. in one of the general wards or £3 3s. per week where a single-bed ward or bed in a three-bed ward is required. This charge to include attendance from the infirmary resident medical staff. In the event of the services of one of the consultant medical officers of the infirmary being required an additional charge of £1 1s. for each attendance of the consultant shall be paid, and in the event of an operation being required a fee shall be paid for the services of the operating surgeon at the rate specified in the table attached hereto.

The private medical attendant of a patient so admitted may be allowed, subject to reasonable restrictions, to visit him in the infirmary and confer with the medical staff in reference to his progress.

All applications for admission must be made to the clerk to the guardians.

It will be noticed that the guardians have not seen their way to consent to paying patients remaining under the entire charge of their own doctors when admitted to Southmead. They put the matter clearly when they said that they did not think that the regulations at present governing the administration of Poor Law infirmaries would permit them to run a private nursing home where the doctors in attendance on the patients would not be in any sense responsible to the board of guardians.

The admission of paying patients is in the hands of the clerk to the guardians, and is outside the province of the relieving officers.

V.

By A MIDLAND GENERAL PRACTITIONER.

THE organization of voluntary hospitals is so intimately bound up with the teaching and practice of medicine that any alteration or suggested alteration in their organization or work is bound to arouse the strongest interest all through the medical profession. The fact that the Council of the British Medical Association has thought it necessary to issue a special report on this subject in advance of the usual annual report of the Council, and to lay down a proposed policy for the Association, is evidence that alterations of serious and fundamental character are actually taking place or expected to take place.

A consideration of these changing conditions shows that they are being brought about by the progress medicine and surgery are making in their methods of diagnosis and treatment; they do not originate primarily in a change of the attitude of the public towards the hospitals or even in a falling off of subscriptions. With the progress of scientific knowledge more and more expensive means both of diagnosis and treatment are being evolved and taking their place in the scheme for dealing with diseases of all kinds.

The immediate effect of this is that a continually increasing proportion of the whole population find themselves unable to provide what is now considered necessary for their proper treatment without having recourse to the hospitals, either because the treatment is beyond their reach financially or because the apparatus is not otherwise available, and an increasing proportion of all diseases are more efficiently treated in hospital than they can possibly be in the homes of the patients.

In London and the large centres with teaching schools this same progress leads to a continually increasing degree of specialization among the members of the staffs of the voluntary hospitals, and an increasing gap between the experience of the specialists and that of the great body of the practising medical profession. Even thirty years ago, outside London, a large proportion of the consulting physicians and surgeons on the staffs of the voluntary hospitals were at the same time in general practice, and appointments to the hospital staff were within the reach of suitably qualified general practitioners. These conditions still hold in the smaller centres and with regard to the staffing of county and other voluntary hospitals. And in country districts the cottage hospitals give practitioners an opportunity of keeping up certain sides of their work. The town general practitioner is in danger of becoming a sorting and certificate-signing machine, passing all important treatment on to others (because it is in the best interest of the town patient), and having no opportunity of carrying out or seeing carried out such treatment.

The absolute necessity of linking up the general practitioner of the town with the treatment carried out in voluntary hospitals, if he is to maintain and increase his efficiency, must not be lost sight of in the changes of organization which are taking place. This can be helped in several ways—for example, by the frequent holding in the hospitals of clinical courses of instruction for practitioners, by the establishment of small hospitals or setting aside wards in hospitals, in which, as in the present cottage hospitals, the practitioner can take his part in the treatment. The increasing cost and complexity of medical treatment is taking to the voluntary hospitals numbers of persons who must get their treatment in this way, although able and willing to pay something of the cost. In the past these people have paid their own doctors', and in many cases the consultants', charges, and this money is part of the available income which enables an area to provide and pay the number of medical practitioners of the various types necessary for the medical service of the inhabitants of the place. If the voluntary hospitals, out of subscriptions and charitable funds, are to provide services for these persons free of cost, much harm is likely to be done to the medical service of the district; as the available money for medical services gets less the number of practitioners would proportionally diminish.

For these reasons it seems essential that, in any changes of organization by which certain patients pay the hospital for the benefits they receive, and if the standard and amount of medical service in the area is to be maintained, payments must be made to the practitioners who carry out the treatment. As a temporary measure, and as the only practical way yet put forward, the staff fund does meet this point. The staff fund ought not to be regarded as the final settlement of this difficult question, but only as a present and temporary solution during what is likely to be a transition period.

For the sick poor, in the future as in the past, the services of the medical profession, both consulting and general practitioner, will be certain to be available. It is a tradition we have inherited and which we would wish to pass on to our successors unimpaired, and it is our business to see that changes in organization do not interfere with this principle.

Of the many and various expedients to which the voluntary hospitals have resorted to increase their funds there is one that concerns the medical profession most closely. I refer to the recent schemes for enrolling members who, in return for a weekly or other periodic payment, are entitled to the services of the hospital when they may require them; in other words, "hospital clubs." The method of regular collections from workers to Hospital Saturday Funds, which are handed over to the hospitals as donations, has been found in practice to carry with it an implication of right to service by the subscribers, so that these donations tend to become

payments for services; but this implication is as nothing to the obligation which a hospital will find itself saddled with when it starts its "hospital club." The members of the scheme can and will demand hospital treatment whenever they consider they require it, and will not tolerate rules which would limit their access to the hospital—for example, via the general practitioner's recommendation. Such a club, if successful, would quickly monopolize the resources of the hospital, and the staff of consulting physicians and surgeons would find themselves engaged in a new form of club practice in which they did not even get the small weekly subscriptions. Fortunately this type of scheme is not likely to succeed.

One of the most recent phases of the hospital problem has arisen from the attempts which some approved societies have made and are making to give additional benefits to their members in the form of the services of consultants, or of specialists in some particular subject—for example, ophthalmic surgeons. The medical profession had always anticipated that when such benefits were added to the present general practitioner's service the scheme would be drawn up by the Ministry in consultation with the profession, and not in the way that it is coming about now. In face of this it is of primary importance that the medical profession take up the position at once that any society wishing to extend to its members any service by registered medical practitioners must negotiate its scheme direct with the profession through the British Medical Association and not with the committees of voluntary hospitals; and that negotiations with the hospital authorities should only take place after it has been agreed that the service in question would be given to greater advantage through a voluntary hospital than by the individual practitioner. It should be brought to the knowledge of societies that the British Medical Association is willing to help them to lay out their schemes on the best lines, and hospital staffs should be warned not to agree to give service under any such arrangements as have not been approved centrally as well as by the profession locally.

Though many or most of us would prefer to see the old arrangements of voluntary hospitals and their honorary staffs carried on unaltered, yet the changes now coming about seem to render this impossible, and it is not in the interest of either the public or the voluntary hospitals that we should allow fresh arrangements to mature without expressing our opinion on the form these arrangements should take.

VI.

By a London General Practitioner.

Most of the present turmoil in the medical profession, as well as amongst the public, is due to the contest between the principle of voluntary effort and the principle of State control.

If it be agreed that the State, through local authorities, should make complete provision for the medical treatment of some section of the community (if not the whole) it becomes plain that the two services which urgently require consideration at the present moment are the hospitals and the clinics. In connexion with these services certain axioms may be laid down. In the first place, in the present state of the country's finances economy is necessary. If any advocates of those services desire particular modifications it is essential that these modifications should be shown not only to make for efficiency, but also to be economical. A very high degree of efficiency will be required to justify the more expensive of two methods. It is not to be expected that local authorities will double the expenses simply to oblige the medical profession. Secondly, as public funds will be involved, the usual corollary of public control will be insisted upon. Thirdly, in order to enforce public control all medical officers engaged in the service will be paid. Fourthly, sooner or later in any service involving any special skill the public authority will insist on the production of credentials.

If local authorities become responsible for hospital treatment there are various methods by which it may be exercised. Thus, arrangements may be made with a voluntary hospital if such exists with a sufficiency of beds. In this case the voluntary hospital could retain its distinctive character, and might receive payment from the local authority in return for right of inspection of their patients under treatment, or for some representation on the hospital board, or both. But if all patients of the hospital class become the care of the local authority, it is clear that in the end the local authority will have a preponderating voice in the management of the hospital, and the voluntary hospital system will become extinct. Hence again the need for answering fundamental questions becomes clear. For what sections of the community should the State make complete provision? Instead of making arrangements with voluntary hospitals, and in places where no such hospitals exist, the local authority might set up hospitals of its own or utilize existing Poor Law infirmaries, as is indeed being done.

Much is made of the stigma of pauperism. But in its essence is there any real difference between the municipal hospital and the Poor Law infirmary? Both are under public bodies; both take people who cannot afford adequate treatment at their own expense; both have the right to make a charge according to the means of the patient; to both certain sections (if not the whole) of the community have the right of admission under certain circumstances; in both treatment is conducted by paid servants of the authority. The only possible differences will be in matters of detail, and in the fact that the right of admission to these institutions is to be extended to cover a larger section of the community.

It is at this point that the views of the Consultative Council of the Ministry of Health come into prominence. Is it possible to make these municipal hospitals correspond to the Primary Health Centres of the Dawson Report? In certain areas perhaps; in other areas almost certainly not. The present Poor Law infirmary is generally a large institution wherein are many cases of serious illness. In the past treatment has, in the main, been carried on by whole-time medical officers who in many instances acquired skill and experience. This position is now changing. Consulting staffs have been appointed to some infirmaries in various parts of the country, and the proposals of the Ministry of Health will lead to these institutions being thrown open to other grades in the community. The Primary Health Centre, it has been proposed, should be an essential part of general practitioner treatment. Are these large infirmaries, which are now introducing more specialized work, to be handed over to the general practitioners in the districts in which they are situated? If all the general practitioners of the area are to be admitted to treat their patients in the infirmary, what is to be the relation of the whole-time superintendent to all the general practitioners? Under what supervision or inspection will the local authority which pays for the infirmary place the general practitioners who are treating patients for whom the authority is responsible? When the municipal hospital takes the form of a cottage hospital, all may be well. In an outlying suburb of manageable dimensions, or in a comparatively small special hospital, some reasonable arrangement may be made. But these are "parish pump" concerns compared with the disposal of a municipal hospital of 2,000 beds. And it is in terms of such institutions that the questions should be debated.

In connexion with the formation of municipal hospitals there is another matter which has received insufficient attention. There has long been an outcry against the so-called out-patient departments at voluntary hospitals. In schemes drawn up by the British Medical Association there has usually been a statement to the effect that there shall be no out-patient departments of municipal hospitals. But a very large number of patients go to out-patient departments, and the question is whether the medical profession can at the present time absorb these patients so that these departments shall cease to exist. For financial reasons an extended panel system applying to the dependants of insured persons is probably out of the question at present. A large proportion of the hospital out-patients are unable to pay a fee at which the private practitioner is willing to see them. They are of value for teaching purposes where medical schools exist. Their numbers are, as a matter of fact, being added to in the system of clinics which are now springing up—as, for example, at Willesden. The method by which some of the class are being treated by the guardians through district medical officers does not seem satisfactory in some areas. On the other hand, a system of driving them to seek medical treatment from private practitioners might ultimately tend to solve the question by producing an additional crop of doctors willing to take on such work. At all events, I venture to suggest that the question does not seem to be so completely settled as to justify the dictum "no out-patient departments." Active local authorities will establish such departments unless their difficulties are met by reasonable discussion. If it can be shown that the local provision of

one-third of the actual cost of maintenance. The almoner at the Royal Infirmary is an experienced lady, well qualified for the work, whose competence to assess a patient's circumstances no one questions. It seems clear that the amount which patients can contribute to the cost of hospitals is so little as to provide no solution of the financial difficulties with which they are faced.

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The immediate effect of this is that a continually increasing proportion of the whole population find themselves unable to provide what is now considered necessary for their proper treatment without having recourse to the hospitals, either because the treatment is beyond their reach financially or because the apparatus is not otherwise available, and an increasing proportion of all diseases are more efficiently treated in hospital than they can possibly be in the homes of the patients.

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The absolute necessity of linking up the general practitioner of the town with the treatment carried out in voluntary hospitals, if he is to maintain and increase his efficiency, must not be lost sight of in the changes of organization which are taking place. This can be helped in several ways—for example, by the frequent holding in the hospitals of clinical courses of instruction for practitioners, by the establishment of small hospitals or setting aside wards in hospitals, in which, as in the present cottage hospitals, the practitioner can take his part in the treatment. The increasing cost and complexity of medical treatment is taking to the voluntary hospitals numbers of persons who must get their treatment in this way, although able and willing to pay something of the cost. In the past these people have paid their own doctors', and in many cases the consultants', charges, and this money is part of the available income which enables an area to provide and pay the number of medical practitioners of the various types necessary for the medical service of the inhabitants of the place. If the voluntary hospitals, out of subscriptions and charitable funds, are to provide services for these persons free of cost, much harm is likely to be done to the medical service of the district; as the available money for medical services gets less the number of practitioners would proportionally diminish.

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Of the many and various expedients to which the voluntary hospitals have resorted to increase their funds there is one that concerns the medical profession most closely. I refer to the recent schemes for enrolling members who, in return for a weekly or other periodic payment, are entitled to the services of the hospital when they may require them; in other words, "hospital clubs." The method of regular collections from workers to Hospital Saturday Funds, which are handed over to the hospitals as donations, has been found in practice to carry with it an implication of right to service by the subscribers, so that these donations tend to become

payments for services; but this implication is as nothing to the obligation which a hospital will find itself saddled with when it starts its "hospital club." The members of the scheme can and will demand hospital treatment whenever they consider they require it, and will not tolerate rules which would limit their access to the hospital—for example, via the general practitioner's recommendation. Such a club, if successful, would quickly monopolize the resources of the hospital, and the staff of consulting physicians and surgeons would find themselves engaged in a new form of club practice in which they did not even get the small weekly subscriptions. Fortunately this type of scheme is not likely to succeed.

One of the most recent phases of the hospital problem has arisen from the attempts which some approved societies have made and are making to give additional benefits to their members in the form of the services of consultants, or of specialists in some particular subject—for example, ophthalmic surgeons. The medical profession had always anticipated that when such benefits were added to the present general practitioner's service the scheme would be drawn up by the Ministry in consultation with the profession, and not in the way that it is coming about now. In face of this it is of primary importance that the medical profession take up the position at once that any society wishing to extend to its members any service by registered medical practitioners must negotiate its scheme direct with the profession through the British Medical Association and not with the committees of voluntary hospitals; and that negotiations with the hospital authorities should only take place after it has been agreed that the service in question would be given to greater advantage through a voluntary hospital than by the individual practitioner. It should be brought to the knowledge of societies that the British Medical Association is willing to help them to lay out their schemes on the best lines, and hospital staffs should be warned not to agree to give service under any such arrangements as have not been approved centrally as well as by the profession locally.

Though many or most of us would prefer to see the old arrangements of voluntary hospitals and their honorary staffs carried on unaltered, yet the changes now coming about seem to render this impossible, and it is not in the interest of either the public or the voluntary hospitals that we should allow fresh arrangements to mature without expressing our opinion on the form these arrangements should take.

VI.

By a London General Practitioner.

Most of the present turmoil in the medical profession, as well as amongst the public, is due to the contest between the principle of voluntary effort and the principle of State control.

If it be agreed that the State, through local authorities, should make complete provision for the medical treatment of some section of the community (if not the whole) it becomes plain that the two services which urgently require consideration at the present moment are the hospitals and the clinics. In connexion with these services certain axioms may be laid down. In the first place, in the present state of the country's finances economy is necessary. If any advocates of those services desire particular modifications it is essential that these modifications should be shown not only to make for efficiency, but also to be economical. A very high degree of efficiency will be required to justify the more expensive of two methods. It is not to be expected that local authorities will double the expenses simply to oblige the medical profession. Secondly, as public funds will be involved, the usual corollary of public control will be insisted upon. Thirdly, in order to enforce public control all medical officers engaged in the service will be paid. Fourthly, sooner or later in any service involving any special skill the public authority will insist on the production of credentials.

If local authorities become responsible for hospital treatment there are various methods by which it may be exercised. Thus, arrangements may be made with a voluntary hospital if such exists with a sufficiency of beds. In this case the voluntary hospital could retain its distinctive character, and might receive payment from the local authority in return for right of inspection of their patients under treatment, or for some representation on the hospital board, or both. But if all patients of the hospital class become the care of the local authority, it is clear that in the end the local authority will have a preponderating voice in the management of the hospital, and the voluntary hospital system will become extinct. Hence again the need for answering fundamental questions becomes clear. For what sections of the community should the State make complete provision? Instead of making arrangements with voluntary hospitals, and in places where no such hospitals exist, the local authority might set up hospitals of its own or utilize existing Poor Law infirmaries, as is indeed being done.

Much is made of the stigma of pauperism. But in its essence is there any real difference between the municipal hospital and the Poor Law infirmary? Both are under public bodies; both take people who cannot afford adequate treatment at their own expense; both have the right to make a charge according to the means of the patient; to both certain sections (if not the whole) of the community have the right of admission under certain circumstances; in both treatment is conducted by paid servants of the authority. The only possible differences will be in matters of detail, and in the fact that the right of admission to these institutions is to be extended to cover a larger section of the community.

It is at this point that the views of the Consultative Council of the Ministry of Health come into prominence. Is it possible to make these municipal hospitals correspond to the Primary Health Centres of the Dawson Report? In certain areas perhaps; in other areas almost certainly not. The present Poor Law infirmary is generally a large institution wherein are many cases of serious illness. In the past treatment has, in the main, been carried on by whole-time medical officers who in many instances acquired skill and experience. This position is now changing. Consulting staffs have been appointed to some infirmaries in various parts of the country, and the proposals of the Ministry of Health will lead to these institutions being thrown open to other grades in the community. The Primary Health Centre, it has been proposed, should be an essential part of general practitioner treatment. Are these large infirmaries, which are now introducing more specialized work, to be handed over to the general practitioners in the districts in which they are situated? If all the general practitioners of the area are to be admitted to treat their patients in the infirmary, what is to be the relation of the whole-time superintendent to all the general practitioners? Under what supervision or inspection will the local authority which pays for the infirmary place the general practitioners who are treating patients for whom the authority is responsible? When the municipal hospital takes the form of a cottage hospital, all may be well. In an outlying suburb of manageable dimensions, or in a comparatively small special hospital, some reasonable arrangement may be made. But these are "parish pump" concerns compared with the disposal of a municipal hospital of 2,000 beds. And it is in terms of such institutions that the questions should be debated.

In connexion with the formation of municipal hospitals there is another matter which has received insufficient attention. There has long been an outcry against the so-called out-patient departments at voluntary hospitals. In schemes drawn up by the British Medical Association there has usually been a statement to the effect that there shall be no out-patient departments of municipal hospitals. But a very large number of patients go to out-patient departments, and the question is whether the medical profession can at the present time absorb these patients so that these departments shall cease to exist. For financial reasons an extended panel system applying to the dependants of insured persons is probably out of the question at present. A large proportion of the hospital out-patients are unable to pay a fee at which the private practitioner is willing to see them. They are of value for teaching purposes where medical schools exist. Their numbers are, as a matter of fact, being added to in the system of clinics which are now springing up—as, for example, at Willesden. The method by which some of the class are being treated by the guardians through district medical officers does not seem satisfactory in some areas. On the other hand, a system of driving them to seek medical treatment from private practitioners might ultimately tend to solve the question by producing an additional crop of doctors willing to take on such work. At all events, I venture to suggest that the question does not seem to be so completely settled as to justify the dictum "no out-patient departments." Active local authorities will establish such departments unless their difficulties are met by reasonable discussion. If it can be shown that the local provision of

medical man-power is adequate for the purpose, both in quality and quantity, there is no reason why out-patient departments should not be curtailed. Until this is shown it is probably better in certain districts to concentrate on a proper sifting of cases by means of almoners.

In regard to health measures for the future it would be well if three questions were definitely answered before any further legislation is attempted: First, is it agreed that the State, through local authorities, should make complete provision for the medical treatment of the community, or for any section of the community? Secondly, if it is thought that only partial provision should be made, in what should that provision consist? Thirdly, if provision is not to be made for the whole community, to what section should it be limited? To these fundamental questions a fourth may be added—namely, in what way should the cost of these services be defrayed? This question can only be answered after details of the proposed services have been fully considered.

THE METRIC SYSTEM IN MEDICINE.

THE advantages of employing the metric system for prescribing is a matter which has long been under the consideration of the medical profession in this country, and particularly of the British Medical Association. The Medico-Political Committee of the Association, so long ago as 1908, in a report to the Annual Representative Meeting at Sheffield, advocated its introduction, and recommended that a pronouncement should be made on behalf of the Association in favour of the principle of its adoption. Dr. R. C. Buist suggested a practical method of effecting a transition to the metric system in prescribing and dispensing, and this was duly considered and reports were made to the Divisions, leaving it to each Division to take such further action as it deemed advisable. It was agreed at that time by the Representative Meeting that the metric system was safer so far as prescribing was concerned, that its adoption was simple, and that the retention of the present system was unjust to the rising generation of medical students and chemists.

In 1911 the Council of the Association, in pursuance of the instructions of the Annual Representative Meeting at Sheffield, issued a special report on the adoption of the metric system of weights and measures by medical practitioners in prescribing and dispensing. In this report it was stated that the full and complete adoption of the metric system in practice depended upon its being made the system according to which students were trained, so that they would learn to think of quantities primarily in terms of grams, centimetres, etc., instead of, as at present, grains, minims, etc. The Council therefore recommended that the teaching, both theoretical and practical, in pharmacology and materia medica should henceforth be according to the metric system. In 1913 the Medico-Political Committee of the Association again considered the matter in view of the official recommendations by the General Medical Council, but resolved to take no further action at that time. The employment of the metric system in prescribing and dispensing came up again at the Annual Representative Meeting in July, 1917, when a motion was adopted to the effect that the general use of the metric system in the teaching of dispensing, prescribing, and treatment would be beneficial to the scientific interests of the medical profession, and this resolution was forwarded to the General Medical Council, the universities, and other interested bodies.

In spite of these recommendations, however, it must be confessed that the use of the metric system has not yet made much progress among the general body of the medical profession in this country. If, however, medical students are trained thoroughly in its employment, the general adoption of the metric system by the profession must come in time.

At a meeting of the North British Branch of the Pharmaceutical Society of Great Britain, held at Edinburgh on February 15th, 1922, Dr. W. C. Sillar, lecturer on experimental pharmacology at Edinburgh University, stated that the question of employing the metric system for prescribing had been forced upon their attention at Edinburgh by circumstances due to the war, which rendered it necessary to lighten the curriculum. Instead, therefore, of teaching two systems of prescribing, and letting the individual student exercise his preference, the relative advantages and disadvantages were weighed, and the metric system alone was chosen for instructing students. The student, appreciating the ease of calculation of the metric system and its simplicity, met with no difficulty until he encountered his clinical teachers, and was obliged to follow their instructions in the other method. The practitioner, who had learned his doses in minims, grains, and drachms, and was unable readily to translate from one system to the other, was apt to exaggerate the difficulties. The difficulties of the pharmacists were the expense of weights and measures, or alternatively of errors in reading or transposition of quantities from the one system to the other. The imperial system, modified for prescription writing by the additional use of the apothecaries' weight, owed its persistent use to certain conveniences which it possessed. The weights and measures of the system were mainly those which had been originally convenient domestic measurements; for instance, the handful was represented by the ounce, the drop by the minim, the mouthful by the fluid ounce, the teaspoonful by the fluid drachm, a drink by the pint. Secondly, the relation between the weights, as well as that between the measures, had been arrived at to a considerable extent by the simple process of successive doublings; the imperial ounce doubled successively four times equalled the pound, and the apothecaries' drachm doubled successively three times was the apothecaries' ounce. Thirdly, the dissimilarity between the names of these various increments lessened the likelihood of confusing them with one another. The advantages of the metric system, on the other hand, consisted in the easy divisibility by tenths and the simple interchange into equivalents between the respective weights and measures. The advantages of both systems could be combined to some extent for prescription writing by visualizing the fluid domestic measures, the teaspoonful, etc., by the nearest metrical equivalent, 5 c.cm., and then doubling; thus, 5 c.cm. was approximately equivalent to a large teaspoonful, 10 c.cm. to a large dessertspoonful, and 20 c.cm. to a large tablespoonful. This principle might also be carried out with the present conception of the unit to represent the grain, which might therefore be taken as 0.05 of a gram. Two grains and four grains presented no difficulty, being 0.1 and 0.2 of a gram respectively, but the discrepancy became marked on arriving at 10 grains. Therefore in deciding on dosage the new departure had to be made, and it must be considered whether 1.0 gram was too large a quantity or 0.5 too small. Confining the figures to 1, 2, and 5, the question of symbols and nomenclature might also be simplified. To prevent errors in placing the decimal point, a perpendicular line should be drawn immediately to the right of the whole numbers; the use of the decimal point was then no longer necessary. Solids were to be weighed and fluids to be measured, percentages were to be expressed by the weight of a solid in the volume of a fluid, and in the case of fluids by volume in both.

Dr. Sillar said that his practical classes had done the whole of their dispensing using weights of grams and fractions of grams and graduated measures of 100 c.cm., 10 c.cm., and 1 c.m. He hoped that the medical and pharmaceutical professions would heartily co-operate in this serious attempt to lessen the burden of the medical student and to carry out the recommendation of the General Medical Council.

THE late Dr. Alfred Mason, O.B.E., M.C., Admiralty surgeon and agent for Deal, has left net personalty of £13,831. He bequeathed, subject to two life interests of two aunts, £1,000 to the Royal Medical Benevolent College, Epsom, for the education of sons of deceased medical men, to be known as the "Caroline Mason Bequest."

THE sixth Unity History School will be held at Woodbrooke, Birmingham, from July 27th to August 4th. The special character of these schools is the mingling of classes; teachers, business men, labour leaders, professors, and working men attend, and the discussions after the lectures, of which one is given each day, are carried on with good humour and good taste by all parties. This year the course of lectures arranged by Mr. F. S. Marvin and Dr. Charles Singer will deal with "Science and Social Progress," and each will be given by an authority on the subject. Thus, of two lectures on the science of the Greeks, one on biology will be given by Mr. J. A. Platt, Professor of Greek in University College, London; Dr. Singer will lecture on "The Dark Ages and the Dawn," Professor J. A. Thomson on "Darwinism and Contemporary Life and Thought," and Mr. Julian Huxley of Oxford on "Science and Religion." Other lectures, on the relation of science to everyday life, will be given by various authorities. Full particulars can be obtained from Mr. Edwin Gilbert, 78, Mutley Plain, Plymouth.

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THE MEANING OF DEATH RATES.

IT is to utter the merest commonplace to say that the technical developments of medicine, and of the arts and sciences ancillary to medicine, have become so extensive that there is a real need of monographs which, although not "popular" in the too frequent sense of that word—the sense which implies that the author is talking down to the reader—do focus attention upon principles. A monograph by Dr. John Brownlee on the use of death rates as a measure of hygienic conditions, just published by the Medical Research Council,[1] discusses the principia of a method of investigation which is far from being the least technical and specialized of our instruments of inquiry. Although we all use death rates to point morals and adorn tales, we have not all clear ideas as to the advantages and disadvantages of different ways of measuring a death rate. In the ordinary medical curriculum there is no instruction in medical statistics—even in the course for diplomas in public health there is very little; the recent proposals of the General Medical Council do not afford any assurance that a serious training in vital and medical statistics will become a normal part of the course of English post-graduate training. Most medical men, we fancy, know that there are three ways in which the facts, or some of the facts, of mortality can be expressed—namely, by relating the deaths to population without regard to age, the "crude" death rate; by expressing the death rates at ages in terms of a particular population, the "standardized" death rate; and by constructing a "life table." Most medical men know that the first method is liable to be misinterpreted, believe that the second is more useful, and imagine that the third is intelligible only to mathematicians, but, when understood, far more valuable than the others. Dr. Brownlee set himself the task of explaining the merits and shortcomings of the various measures, and has produced a report which is not only valuable but interesting. Of course Dr. Brownlee does not confine himself to this comparison; his monograph contains original contributions both to epidemiology and to the technique of vital statistics, but we shall here only discuss his remarks on the general theme.

Briefly, Dr. Brownlee's conclusion is this: hygienic inferences ought only to be drawn from a comparison of standardized death rates if the latter are connected with life-table death rates in such a way that standardized death rates can be converted easily into life-table death rates. Thus the standardized death rate from all causes together is so related to the life-table death rate, as also are the death rates from pneumonia and from Dr. Brownlee's types of phthisis. Hence it does not in these cases matter which method is employed. But for such diseases as cancer or nephritis there is no simple relation between standardized and life-table scales, and in these cases hygienic inferences ought not to be drawn from standardized mortality rates. Although the standardized death rates from cancer are higher in urban than in rural districts, the life-table method shows that, "taking an equal number of persons living above the age of 15 years, exactly the same proportion is destined to die from cancer whether the individuals live in a rural district, an urban district, or in a county borough."

[1] Special Report No. 60, Medical Research Council, published by H.M. Stationery Office, London, 1922, pp. 80, price 3s. net.

Dr. Brownlee, it will be seen, has an even higher opinion of the life-table method than Dr. Farr had; his judgement of the value of any other method depends upon the degree to which the other method reproduces the teaching of a life table. On the other hand, we recently read, in a journal devoted to actuarial science, a criticism of the Registrar-General's abridged life tables which contained something very like a sneer at the supposed enthusiasm of medical officers of health for the calculation of life tables. It may therefore be of interest to inquire whether any of the arguments against the primacy of the life table—all, we think, mentioned by Dr. Brownlee with the candour which distinguishes his papers—deserve to be emphasized. The first and most important is that a district life table is as much a statistical fiction as is a standardized death rate. Were there any rural district or county borough entrance to which was restricted to those born within its boundaries and from which nobody could escape except by death, the life table of that district would be a perfect translation of the facts of mortality. The meaning of the translation from the hygienic point of view might still not be easy to make out, unless the sanitary conditions of the district were unchanged throughout a generation, yet the statistical translation would be perfect. But in England and Wales there are no such closed areas, and the actual life tables are only statistical fictions. They tell us how a hypothetical population would die out if through a whole generation those rates of mortality were to prevail which prevailed amongst members of different generations observed contemporaneously over a small number of years—at most ten years. Since there is a great deal of internal migration, and since the death rates at ages are not constant from decennium to decennium, it is evident that a district life table does not approximate at all closely to the *Absterbeordnung*, the Order of Dying, of a real human generation. Therefore, if this method gives an answer to some question different from that given by, say, the method of a standardized death rate, it does not follow as an irresistible consequence that one answer is right and the other wrong.

To apply these reflections to the particular case chosen by Dr. Brownlee—that of cancer—his point is that the reason why the standardized death rate of the urban districts is greater than that of the rural districts is that people of the same age in years in town and country are not of the same physiological age; "the necessary allowance," he says, "for the ageing of the body experienced in towns over that experienced in the country must thus first be made before any differentiation between the amounts of cancer present in different districts is justifiable, though here the possibility of local ageing of tissues must not be overlooked, a phenomenon well known when problems of local immunity are the seat of question." But if, as Dr. Brownlee says, "cancer is commonly believed to be a degenerative disease," and if this belief be true, we are left in some doubt as to what remains to be justifiably compared after the desired allowance has been made. It might be urged that this ageing of the tissues is precisely what we wish to study, that we wish to know *why* the tissues are more senescent at a given age in one district or type of community than in another. If in a series of districts the numbers of life-table decedents from cancer at ages over 15 are equal, does it really follow that the average etiological factors of cancer are identical qualitatively and quantitatively in all?

This objection is, we think, much the most formidable in the way of accepting life-table death rates as ultimate criteria of mortality for the purposes of the sanitarian, and we are not sure that Dr. Brownlee's arguments have removed it. The more usual objection, that life-table constants are difficult to compute, is of little moment.

The method of Dr. Snow, used in the Registrar-General's recent collection of district life tables, and Dr. Brownlee's own method, described in the paper under notice, are easy to understand and handy in application. Dr. Brownlee's critique may justifiably excite distrust of inter-local comparisons of rates of mortality, whatever standard of comparison be adopted, whether that of life tables or another.

Dr. Hamer has often called attention to the way in which migration, both internal and external, complicates the problem of geographical comparisons. This difficulty cannot be overcome by any manipulation of the data we now have. Perhaps the intensive study of small samples—a method which in the hands of Professor Bowley has yielded valuable economic results here and has been applied in America to the study of hygienic problems—will prove to be the solution. We do not mean to say that all has now been learned from general routine statistics of mortality which can be learned. Farr showed how much more than a simple arithmetical profit and loss account could be made up from the mortuary registers. Since his time other statisticians, amongst whom Dr. Brownlee himself holds an honourable place, have come nearer still to the centre of the labyrinth, and no man can say that further progress is impossible. But something akin to the collective investigations which the British Medical Association promoted some forty years ago seems to be a need of the time. We are now in a much better position to carry out such investigations than we were even a generation ago. On the purely statistical side knowledge of the conditions and limitations of sampling and of the methods by which the significance of averages based upon samples may be appraised is more diffused, and the training of field workers is easier. Such a study as Dr. Perry's, of the American Cotton Industry,[2] suggests lines of inquiry which could be followed in England with greater ease than in the United States, and, although involving peculiar difficulties, would at least not be subject to those ambiguities which inhere in the massed records of our official departments. While we do not agree with all the conclusions reached by Dr. Brownlee, it is a pleasure to express our appreciation of the value of his monograph. Dr. Brownlee deserves what we think he would regard as the highest praise—namely, a comparison between himself and Farr. He has not, we think, equal powers of literary expression, and hardly carries his learning as easily as his spiritual ancestor. But he has the same large philosophical grasp, the same perception that the statistical method is a means to an end, that end being the revelation of the biological factors of life and death, of disease and health. The medical officer of health who reads his papers will learn a good deal about statistical methods; he will also learn what is even more important—something of the goal to which all medical statisticians and biometricians are striving.

THE *X*-RAY TREATMENT OF UTERINE FIBROIDS.

NONE of the applications of *x*-ray therapy are more important or fraught with greater interest than that to the treatment of fibromyomata of the uterus. While it is true that the method has acquired greater popularity in America and on the Continent, yet that British gynaecologists are, on the whole, keenly alive to its possibilities and advantages was abundantly demonstrated by the joint discussion between the Sections of Obstetrics and Gynaecology, and Electro-Therapeutics, at the British Medical Association Meeting at Cambridge in July, 1920.[1] Put briefly, the participants in the discussion were agreed upon certain well-defined contra-indications to the treatment, and in the assumption that there is a distinct place for the use of *x* rays in the treatment of selected cases of uterine fibroids. They were agreed that it is unsuitable for women under 40 because of the premature and unusually severe vasomotor phenomena found to ensue; for submucous fibroids and very large fibroids of any variety; for cases in which the tumour is undergoing degeneration or complicated by pelvic inflammatory conditions, old or recent, by the presence of malignant disease, of an ovarian cyst, or of pregnancy; and, according to Dr. Herbert Williamson, when the patient is gravely anaemic with a red blood cell count of less than 2½ million, and the haemoglobin less than 35 per cent.

In a recent article[2] Béclère submits the results of 300 new observations on patients whom he had not only examined but irradiated himself, and whose after-history he had carefully followed. A perusal of his article reveals radical differences between his practice and that of his more conservative British colleagues. Thus, of the 300 cases, 49 were below the age of 40. "Time was," he says, "when Roentgen therapy was only admitted in women above 40. It has, however, been abundantly proved that not only below 40 but even below 30 years it is followed by the same success as at a more advanced age. The youth of the patient has ceased to be a contra-indication." He has not observed any appreciable difference between the natural menopause and that induced by *x* rays. Indeed, most of the patients afterwards enjoyed better health than for many years, owing, no doubt, to the arrest of haemorrhage. On this point of the abnormal severity of the artificial menopause Williamson is, however, very emphatic, and states that he has on several occasions seen distressing and prolonged vasomotor phenomena follow the treatment in women under 40, producing symptoms which were not relieved by extracts of the endocrine glands; in three cases he has seen kraurosis vulvae develop with severe dyspareunia. Such symptoms can, of course, be avoided by hysterectomy with conservation of the ovaries. On the other hand, the views expressed at Cambridge by Dr. Louisa Martindale were in agreement with those of Béclère. She said that "the menopause produced was freer from symptoms than the normal climacteric." And again, *x*-ray treatment "brings about a climacteric involving less disturbance even than a natural one."

According to Béclère, the decision for or against the use of *x* rays is not to be determined by the size of the tumour; in 159 of his cases it was of such dimensions as to extend to a height varying from 10 to 34 cm. (4 to 13 in.) above the symphysis pubis; compression of neighbouring organs, even of the bladder, so far from being regarded as a contra-indication is looked upon as an indication for the employment of *x* rays. "Size," he says, "is never a contraindication to the use of *x* rays." In many of his cases the tumours reached above the level of the umbilicus, while some even extended underneath the costal margin. He recognizes, however, that in the case of such large tumours diminution in size can only be expected to reach a point at which it becomes just bearable to the patient, and that in such cases surgical interference gives a more complete result. The patient should be informed of the relative advantages of both methods, and allowed to choose. But if operation is contraindicated or is refused, "the largest myomas may be treated with success by Roentgen therapy." Thus Béclère's position on this point does not differ very materially from that of his British colleagues.

The "aseptic degenerations"—myxomatous, calcareous and necrobiotic—Béclère does not look upon as contra-

[2] Bulletin No. 251 of the United States Bureau of Labour, Washington, 1919.

[1] BRITISH MEDICAL JOURNAL, 1920, vol. ii. p. 535.
[2] *Bull. de l'Acad. de Méd.*, T. lxxxvi, p. 151.

indications. Of conditions in the tumour itself, "only septic complications, torsion of the pedicle, or grave haemorrhage necessitate surgical intervention, whilst all the other conditions, formerly looked upon as contra-indications, can no longer be considered as such."

In Béclère's experience the only risk attending the treatment was the possibility of producing a form of dermatitis which might be followed by trophic disturbance of the skin of the abdomen. It is a danger easily avoided by using a proper method and precise dosage In none of his 300 cases did he observe the least cutaneous accident, except that frequent temporary brown pigmentation which he looks upon as a normal phenomenon. Sometimes on the same day or the day after the treatment the patient suffered from a condition resembling sea-sickness—the "Roentgenkater" of the German radiologists, called by the French "mal des rayons." Only exceptionally did it end in vomiting, and in no case did it necessitate the patient remaining in bed.

In view of results so excellent, obtained by a technique admittedly in many important respects imperfect, it seems strange that radiotherapy has not been more widely and generally adopted in this country for the treatment of uterine fibroids, more especially as it seems probable that, with increased experience, the results would rapidly improve. We know of famous British schools of medicine in which the only resort in the treatment of fibroids is still surgical operation.

THE ROBERT CAMPBELL MEMORIAL ORATION.

THE first Robert Campbell Memorial Oration was delivered on February 16th, at the Medical Institute, Belfast, by Mr. Thomas Sinclair, C.B., F.R.C.S., Professor of Surgery in the Queen's University, and Surgeon to the Royal Victoria Hospital, Belfast. Sir John Walton Browne, M.D., was in the chair, and there was a very large attendance of the profession; a few of the late Mr. Campbell's relations and intimate friends were also present. Mr. Sinclair began by recalling how, after Robert Campbell's death at the early age of 55, his friends and colleagues resolved that the tribute they desired to pay would better find expression in the establishment of a biennial memorial lecture, by which the advance of surgery and research might be promoted, rather than by seeking to enshrine his well-known personality in some form of pictorial or plastic art. Mr. Sinclair then sketched the outstanding incidents of Campbell's life. He was the second son of the Rev. Robert Campbell of Templepatrick, and a brother of the distinguished gynaecological surgeon Dr. John Campbell of the Samaritan Hospital, Belfast. After a brilliant academic career in Arts and Medicine, during which he secured the highest honours at every step, he graduated in the Royal University of Ireland as first man of his year. Later on he added the Fellowship of the Royal College of Surgeons of England, after further study in Trinity College, Dublin, and St. Thomas's Hospital, London. He was for a time house-surgeon to the Chester Infirmary, but shortly was appointed surgeon to the Children's Hospital in Belfast and to the Royal Victoria Hospital. From time to time he published papers on operation for perforated typhoid ulcer, exophthalmic goitre, and fractures of the head of the radius, and was one of the first to recognize the importance of acid intoxications as a cause of death after chloroform anaesthesia; but his most notable achievement was his pioneer work in the radical cure of hernia in infants and young children. At a time when radical cure was reserved for older children, say from 5 to 9 years of age, Campbell demonstrated that no child was too young to be treated in this manner, and that such cases might in many instances be treated as extern patients after operation. His first paper concerning twenty cases was read before the annual meeting of the British Medical Association at Portsmouth, and the popularizing of the early adoption of this practice may be said to date from this period. Stiles of Edinburgh followed the next year with an account of 100 cases, but assigned the age of 2 years as a limit. Campbell in later years extended his series to 1,500 cases with only one death, and that from delayed chloroform poisoning, and with only three cases of sepsis in the wound. Campbell was the first to show that at the start cases of appendicitis fell into two categories, one primarily obstructive leading to gangrene and perforation with paroxysmal pains like strangulated hernia, little or no tenderness, rigidity or fever, these symptoms being followed in a day or two when inflammation supervened. Such a train of symptoms brooked no delay in operation. In contrast with these were cases of appendicitis inflammatory from the outset, with fever, tenderness, rigidity, elevation of pulse, and a more continuous, if less violent, type of pain. Such attacks might recur again and again over months or years; the anxieties were not so acute as in the former type, and temporizing in these primarily inflammatory cases was not so disastrous, though prompt operation was safest in both types. In conclusion Mr. Sinclair touched lightly on Robert Campbell's personal qualities, his social graces, his kindliness of disposition, his high standard of honour, and his generosity. He furnished an admirable example to the rising generation of surgeons, who should keep before them his engaging personality, which was the embodiment of the best traditions of our profession. It was a pleasure to bear this testimony in the presence of Mrs. Campbell, who had been a powerful factor in her husband's successful career. Mr. Sinclair then proceeded to make the remarks on the surgery of the blood which are reported at page 375. At the conclusion of the oration a vote of thanks to Mr. Sinclair was cordially adopted, on the motion of Professor J. A. Lindsay, Professor of Medicine in Queen's University, seconded by Dr. John Morrow, physician to the Royal Victoria Hospital.

NATIONAL COLLECTION OF TYPE CULTURES.

THE Medical Research Council has issued a catalogue[1] of the national collection of type cultures, to the formation of which at the Lister Institute we have on several occasions made reference. The need of such a collection has long been felt in many directions, and particularly in medical research work, both for the study of principles and methods in bacteriological investigations and for the systematic classification of the various species and strains of bacteria and protozoa. Before the war M. Binot's collection at the Pasteur Institute in Paris was very helpful to workers here, as was a collection of type cultures, first formed on a commercial basis by Král at Prague, and subsequently maintained by the Serophysiological Institute in Vienna. The Museum of Natural History in New York has for some years maintained a culture bureau, which has helped workers here, not only by the provision of authentic cultures, but also by the studies in classification made by its staff. In this country the Lister Institute of Preventive Medicine has for many years assisted bacteriologists, both at home and abroad, so far as the resources of its own private collection permitted, and two years ago the Medical Research Council was able to make arrangements for the maintenance there of a national collection of type cultures, the governing body of the Institute undertaking to provide all necessary facilities. The collection is under the direction of Dr. J. C. G. Ledingham, F.R.S., a member of the staff of the Institute, assisted by a curator, Dr. R. St. John Brooks, and an assistant curator, Miss M. Rhodes, appointed by the Medical Research Council. Attention has been concentrated primarily upon obtaining fully authenticated strains of pathogenic organisms, but bacterial and protozoal strains of economic importance are being added as opportunity offers. The staff of the collection, which is also experimenting with economical and labour-saving methods of sub-culture, is prepared to help in the identification of strains received from workers at home or abroad. It is hoped that such workers will reciprocate by presenting new material to the collection

[1] London: H.M. Stationery Office or through any bookseller. (Price 1s. 6d. net.)

for permanent maintenance. In the present position of the problems involved in the classification of micro-organisms, the names in the main catalogue have been arranged in alphabetical order, and a subject index has been added giving cross-references under etiological headings. In the nomenclature employed long-established usage has been followed, but the need for international uniformity is recognized, and it is hoped in future editions to take fuller cognizance of the labours of systematists in this and other countries. The scope of the collection has been extended to include fungi of importance in plant-pathology, medicine, veterinary science, technology, and soil biology. This part of the collection will be managed by a committee appointed by the British Mycological Society, and of which the curator of the National Collection is a member. The annual lists of the mycological collection will be published in the *Transactions* of the society. The Council invites the co-operation of bacteriologists, and it asks that cultures sent either for identification or for maintenance in the collection should be accompanied by full particulars as to source and date of isolation, and if possible by clinical and epidemiological notes. All communications should be addressed to the Curator, National Collection of Type Cultures, Lister Institute, Chelsea Gardens, London, S.W.1.

PROPHYLAXIS AGAINST TYPHUS FOR TRAVELLERS.

THE practitioner is nowadays asked with increasing frequency by patients who have to travel in Poland or the Near East as to what precautions can be taken against typhus fever. The advice is not easy to give. Unlike typhoid fever, no effective method of immunization against typhus is known. Various protective and therapeutic serums have been described by foreign observers, such as that of Drs. Nicolle and Blaigot,[1] and, more recently, interesting and promising experiments in immunizing monkeys with living virus have been described by Professor Kusama, of Tokio,[2] but prophylactic vaccine therapy against typhus remains entirely in the experimental stage. Even were it possible to procure it in this country, there is no serum or vaccine which can be recommended in any sense as of proved value. Nor is this surprising when we consider the uncertainty which still surrounds the causal organism. Apart, therefore, from the ordinary rules of hygiene, such as the avoidance where possible of over-fatigue, filth, overcrowding, and areas known to be heavily infected, the traveller must for the present rely on those precautionary measures which consist entirely in the avoidance and destruction of lice. It will probably not be necessary for the ordinary English traveller to take all the precautions recommended to doctors or nurses who are actually in attendance upon typhus patients, such for example as the special "louse proof" combined linen under-garments or the top boots which are thought to defy louse invasion from the floor. Frequent changes of underclothing are, however, desirable, and if the places visited are infected with typhus or known to be heavily infested with lice, a rigorous search should be made at least twice a day for the parasites; if frequently and thoroughly done, merely searching, picking, and brushing the underclothes can accomplish a good deal. Frequent change of underclothing is advantageous even in the absence of facilities for washing the clothing removed. Cold and fasting are abhorrent to the louse. The hair should be kept short and baths taken when possible. For the ordinary traveller probably the most convenient way of "delousing" infested underclothing is to soak it in a solution of lysol for twenty minutes in a strength of 2 per cent. if cold, or 1 per cent. if hot water be available. Baking, boiling or soaking in petrol are also efficacious. A hot flat-iron applied along the seams is a simple and effective method, if available. Anti-louse applications for the clothing are innumerable. Powdered naphthalene (or ointments containing naphthalene) is probably the best and least objectionable to the user. The ordinary pyrethrum insect powder avails little against the louse. A 15 per cent. alcoholic solution of anisol rubbed on such parts as might be first invaded—for example, the neck—is said to have a deterrent action. In conditions of travel approximating to service conditions, however, where frequent changes of underclothing are impossible or heavy infestation is to be feared, the N.C.I. powder (naphthalene, with creosote 2 per cent. and iodoform 2 per cent.) should be dusted at two-day intervals into the underclothing, except at the fork and the armpits, where it may cause severe irritation. For these situations, and as a general adjuvant to N.C.I., "vermigelli" may be used. Those with sensitive skins may find difficulty in tolerating any of these remedies. The habits, the frequent changes of underclothing, and the vigilant eye of the ordinary clean Englishman will, however, in peace-time conditions, even in the Near East, greatly assist to preserve him from the low-grade infectivity of typhus without additional precautions. If actually engaged in medical or relief work in typhus areas, however, stringent precautions should be taken, especially with regard to louse-proof clothing.

[1] *Annales de l'Institut Pasteur*, 1916
[2] *Lancet*, August 20th, 1921.

TRANSMISSION OF PLAGUE BY RATS.

PROFESSOR J. J. VAN LOGHEM, director of the Department of Tropical Hygiene at the Colonial Institute, Amsterdam, delivered one of the series of Chadwick Public Lectures in London on March 2nd, when he dealt with the plague question as it affected Europe past and present. He confined himself to bubonic plague, which he regarded as being the plague of all the great historical epidemics, and his argument was that in the time of old Europe the domestic architecture, the habits of the people, and the sanitary conditions generally were such as to encourage the breeding of rats in much closer proximity to man than was the case anywhere in Western Europe to-day. At the time of the plague outbreaks in London and Amsterdam in the seventeenth century the rat probably lived as near to the occupiers of dwelling-houses as it did at the present time in the plague-stricken areas of the tropics and subtropics. In this connexion he spoke of his recent investigations in Java, where he found the house rat—*Mus rattus*—making its nest inside the bamboo poles used for the beams of the houses and the supports of the beds. Plague infection, in his view, depended upon the distance between rat and man being sufficiently short to permit of the rat-flea conveying the disease to man. The influence of climate and season upon the rat-flea carrying the plague parasite accounted for the climatic and seasonal variations of rat-borne plague. He showed diagrams illustrating the fluctuations of the plague in London and in certain Dutch towns in the seventeenth century. In all these cases the highest point was reached in August and September, after which there was a sharp decline. He quoted Daniel Defoe's *Journal* to prove that in the winter and spring preceding the plague of 1665 in London isolated cases appeared within a few weeks of each other and traceable to the same neighbourhood—Long Acre—although it was not until the summer that any epidemic arose. There was no difficulty in explaining these sporadic cases in the light of modern knowledge if it was remembered that the propagation of the plague depended not on contact between human beings but on the activity of the rat-flea, for the supposition was that all through this epidemic-free period there was plague among the rats, and only when the seasonal conditions favoured insect activity did the epidemic arise among human beings. His pupil, Dr. Dykstra of Amsterdam, had made some interesting researches on the plague which occurred in that city in 1617, by studying the lists of the Carthusian burial ground. They gave full particulars of the persons interred, including their places of residence, and he found that for six weeks in the early summer the plague was strictly localized to two or three streets; later it spread over a large quarter of the town, but its spread was topographical, from house to house and street to street. There was no other explanation of such a picture than localized rat plague. The animal concerned was not the brown or grey rat now familiar, but the black house rat, the "big

mouse," which was rarely seen in Europe to-day. Even in the time of Cuvier the black rat, though still common, was being ousted by the brown, but it was a rat of the same species as this former domesticated habitant of Europe which caused the recent outbreak of plague in Java. That the brown rat can carry plague in the same way is, of course, evident; it was the brown rat which was responsible for the small epidemic in Paris in 1920, when most of the 150 victims were rag dealers, who were compelled by their trade to live near to the haunts of the rats; but the point is that the brown rat is not a domesticated animal like its predecessor, and to that extent is less dangerous. In the old days, with dark house interiors, straw beds, and abundance of food and other stores kept in dwellings, the black rat had a fertile breeding-ground. Professor Van Loghem paid a high tribute to British work on plague. He said that before the plague appeared in the Dutch Indies the hygienists of Holland were well acquainted with the investigations of British epidemiologists —he mentioned a dozen names—and when in 1911 the plague came to Java, fifteen years after it had come to Bombay, they had only to avail themselves of the ideas with which British research had furnished them.

THE NATURE OF THE VIRUS OF VACCINIA.

A METHOD which permits of the isolation and concentration in suspension of the infective agent of vaccinia has been devised by MacCallum and Oppenheimer.[1] Briefly stated, it is a method of differential centrifugalization with the use of suspending fluids of different specific gravities, and it is applicable to the purification of vaccine lymph from bacterial and other contamination. The same procedure may be applied to the study of many diseases, the infective agent of which is unknown or difficult of isolation, such as small-pox, measles, scarlet fever, typhus fever, rabies, and all the various infections supposed to be due to ultramicroscopic organisms. A commercial sample of calf lymph, the specific gravity of which was determined as 1.1638, was centrifugalized at high speed for an hour in small narrow tubes of 1 c.cm. capacity. The lymph separated into a solid mass of sediment, a thick turbid layer, and a superficial less turbid layer. The separate layers were inoculated on the rabbit's cornea, and only the superficial layer produced the typical vaccine lesion. This layer was pipetted off, mixed with Locke's solution (the specific gravity of the mixture being 0.99), centrifugalized, and the upper and lower layers tested on the rabbit's cornea as before. It was now found that the virus had sunk to the bottom of the tube, showing that the specific gravity of the infective agent was higher than the last figure. A series of flasks was prepared with mixtures of glycerin and Locke's solution varying in specific gravity from 1 to 1.6, and with these suspending fluids the specific gravity of the virus itself was approached from both sides. Each mixture was accurately weighed and the specific gravity of the final mixture thus ascertained. By inoculating top layer and bottom layer in each case it was found that the virus floated in a suspending fluid of specific gravity 1.14 and sank when the specific gravity was 1.11. Its own specific gravity is probably about 1.12 or 1.13. To purify it, therefore, it seemed best to wash it and centrifugalize it in a suspending fluid just heavier than itself, for by so doing the maximal removal of contaminating material will be removed. When this was done, the examination of a drop of the virulent top layer under the microscope with dark ground illumination showed myriads of minute granules of uniform size, very much smaller than streptococci or staphylococci. They shone dully and exhibited Brownian movement. The granules occurred singly, in small groups, or in tiny beaded chains which were about one-tenth the size of a chain of streptococci with the same number of elements. They stained faintly with methylene blue, were Gram-negative, and took a deep colour with carbol-fuchsin. The granules are apparently identical with those seen in tissues and smears from vaccinia and small-pox by Prowazek and others. So far the authors have not succeeded in agglutinating them with the immune serums at present available.

[1] *Journ. Amer. Med. Assoc.*, February 11th, 1922.

EFFECTS OF GAMMA RAYS FROM A LARGE QUANTITY OF RADIUM.

THE promised report of the Medical Research Council on the effects of the gamma rays from a large quantity of radium has been published.[1] The radium employed amounted to nearly 5 grams of hydrated radium bromide, or about 2½ grams of radium element, which was collected by the Ministry of Munitions from innumerable gun-sights, watch-dials, and other instruments of war, and handed over for the purpose of medical research. The whole quantity of radium salt thus made available was, in the first instance, put in the charge of the late Mr. Cecil Lyster—whose untimely death in January, 1920, was a great loss to medicine, and especially to his chosen field of radiology—Professor W. S. Lazarus-Barlow, and Professor Sidney Russ. The object of the first inquiries was to determine the curative value in malignant disease of penetrating radiation of extremely short wave-length, like that of the gamma rays of radium, in order to ascertain whether the use of this very large amount of radium would give appreciably different results, in kind or degree, than had been obtained hitherto with quantities of about a tenth of the amount. This work was done in the cancer wards and research laboratories of the Middlesex Hospital, with the clinical collaboration of the physicians and surgeons of the hospital. Special apparatus was designed by Dr. S. Russ for the custody and employment of the unusually large quantity of radium and for the protection of the workers. When the radium salt was not actually in use for the treatment of patients it was employed for experimental exposures of various animals. In 1920 the Treasury gave its sanction to the formal transference of the radium, at its insurance value of £72,500, from the Disposal Board of the Ministry of Munitions to the Medical Research Council, in order to maintain its use for research purposes, and at the conclusion of the preliminary period of mass experiment at the Middlesex Hospital the Council arranged for the distribution of the radium among several research centres in London, the provinces, Wales, Scotland, and Ireland. At each centre special attention is being concentrated upon particular forms of malignant disease and their treatment. The report is divided into six chapters. The first chapter, by Dr. W. S. Lazarus-Barlow, Dr. S. Russ, and Dr. Helen Chambers, deals with the use of the gamma rays from a large quantity of radium in the treatment of malignant disease; the conclusion is that the majority of malignant growths exhibit a high degree of resistance to the radiation; some few types of growth (lymphosarcomata, for example) have seemed more susceptible, but others (squamous epitheliomata, for instance) have proved more refractory. The amount of pain due to the damage of the skin has been very variable, and the degree of injury to the skin seems to be definitely influenced by the local vascular supply. Sometimes the effect of radiation has been to hasten ulceration, and an additional factor influencing this result is the effect of the radiation on sepsis, for there seems little doubt that if a growth is already infected the radiation produces favourable conditions for the growth of bacteria. One of the chief features of interest in the application of this large quantity of radium was the general physiological reaction of the patients; under the conditions adopted the whole body received an appreciable amount of gamma radiation, and during exposures lasting four or five hours several patients complained of headache and sickness, followed by a feeling of general malaise lasting a few days. Another observation of importance was that occasionally marked oedema would supervene within twenty-four hours of the radium exposure. The investigators are convinced that it is necessary for the physician, surgeon, radiologist, and pathologist to work

[1] *Medical Uses of Radium: Studies of the Effects of Gamma Rays from a Large Quantity of Radium.* Medical Research Council. Special Report Series, No. 62. London: His Majesty's Stationery Office. 1922. 5s. net.

together in the treatment of malignant disease. The second chapter, by Dr. W. S. Lazarus-Barlow, deals with the histological changes produced in certain neoplastic and normal tissues in man by the gamma rays of radium. The result of the exposure to a considerable degree of radiation is apparently that there is a disappearance of cytoplasm from the neoplastic cells, more marked after a single than after two exposures; the intranuclear relations are altered; there is increased tendency to the occurrence of localized degeneration of neoplastic cell masses; the connective tissue fibres permeating the growth become collagenous; the appearance of lymphocytic or small mononuclear cells—usually found in advance of the growing edge of a malignant neoplasm—is less extensive than usual; and there is no evidence of proliferative change in connective tissue or endothelium. The third chapter of the report, also by Dr. Lazarus-Barlow, deals with the histological and some other changes produced in animals by exposure to the gamma rays of radium; it is founded on the examination of a large number of frogs, rats, rabbits, and cats, exposed under different conditions to the gamma radiation of the mass of radium bromide. The fourth chapter is a separate report by Dr. T. Morowoka and Sir Frederick Mott upon the appearances found in the brains of the animals; and the fifth chapter, by Dr. C. Price Jones, deals with the changes produced in the bone marrow in rabbits. Chapter six is a short report on the average range of beta rays in different metals, by Mr. G. A. Sutherland and Mr. L. H. Clark.

HOOKWORM IN CORNWALL.

IN a recent article in our columns on the work of the Medical Research Council (January 28th, 1922, p. 152) mention was made of investigations into ankylostomiasis, particularly as found among the workers in Cornish tin mines. Twenty years ago Haldane and Boycott found that a large proportion of the underground workers in certain of these mines were infected by hookworm. Since that time two simple measures have been brought into operation at the mines, one of them the lowering of the temperature by means of improved ventilation, and the other the bucket transport of faecal matter to the surface from below. Professor R. T. Leiper, at a meeting of the Section of Tropical Medicine of the Royal Society of Medicine on March 6th, brought forward some recent investigations which showed, so far as they went, that hookworm infection, thanks to these measures, had very greatly diminished. His investigation, in which Dr. M. Khalil and Mrs. Philpot were associated, was undertaken during a period of three weeks in the summer of 1920, at a time when the industrial depression now so severe in Cornwall was just beginning, so that the facilities available were not of the best. The number of workers examined was 130, and of these only eight (or 6.1 per cent.) were found to harbour the parasite, as compared with something like 80 per cent. in part of the earlier investigations. In the Dolcoath mine—which had a very bad pre-eminence at the time of the inquiry by Haldane and Boycott—out of 34 underground workers examined, only two were found to be infected; in the neighbouring mines not a single case was discovered, but at a newly worked mine at East Pool, where there had been a breakdown of the pumping machinery, so that the sanitary precautions at the time of the investigation were not fully effective, out of 22 people examined the ankylostoma was found in 6. Other parasitic worms were found with considerable frequency, showing that there was gross faecal contamination, but Professor Leiper believed that the chief factor in accounting for the diminution in the hookworm infection was the lowering of the temperature of the mine, which resulted in the death of the parasite in the larval stage. He also showed a propaganda film on hookworm disease, prepared by the International Health Board of the Rockefeller Foundation. It was a very lively and popular piece of kinematography, with startling captions, intended to drive home the need for personal and domestic hygiene. One remarkable portion of the film showed the intestine of a dog recently dissected with the ankylostomes still alive and active.

THE GOVERNMENT AND THE GEDDES REPORT.

THE Geddes Committee's report on public economies extends into three Blue Books, of which summaries have appeared in the SUPPLEMENT; it covers practically all the departmental services. No one could expect Sir Robert Horne, in stating what the Government intends to do on the recommendations, to make his analysis and exposition follow strictly parallel lines. That was impossible in a speech of two hours and a half. The matter was rendered the more difficult because the Geddes Committee had reached their totals for reductions by including sums for cuts the nature of which they did not specify but only indicated. Further, it is obvious that in dealing with men and contracts varying time would be required for effecting economies. But the conclusions can be put succinctly. The Geddes Committee suggested cuts to the amount of £86,000,000, of which £71,000,000 was specified. The Government propose cuts on the same basis to the amount of £53,000,000, or, including what can be done as the result of the Washington Conference, £64,000,000. Of this sum £54,000,000 will be realizable in the financial year 1922–23, and will be in addition to reductions amounting to £75,000,000 previously made by the departments themselves. By far the largest savings will, as expected, be in the fighting services, and these will be obtained by the reduction in the numbers of officers and men. Another comparison by Sir Robert Horne was still more striking as an indication of what is being done. Taking into account the supplementary estimates of the present year, which have so weighted the expenditure, he said that the estimates for next year offered a total reduction of £181,000,000. But that, of course, is subject to any supplementary estimates in the later period. The Government is frankly proceeding not only on lines of economy but on a decision that the country must do without various things which would be afforded in normal times. On the other hand, they are bound to remember, in regard to the health services, for example, that a cutting of expenditure may mean an actual loss to the nation in other ways; and for that reason the Geddes Committee itself showed restraint in its counsel in this connexion. The reduction proposed by the committee was £2,100,000; and that was accepted by the Ministry, though it is to be secured in somewhat different ways, and with some sacrifices that must be regretted. The war pensions did not come under review, as they were fixed some time ago, subject to small modifications periodically, as the decline in the cost of living may permit. It would be a mistake to assume that the Government has decided, in regard to grants through departments as a whole, that the percentage system is to be abandoned. The balance of opinion (adds our parliamentary correspondent) is against it, as it does not give adequate control, and rather encourages expenditure by local authorities, but there are objections to the block grant system in that it may also tend to perpetuate an allowance to be lived up to by the local authorities. The proposal to raise the age of entry in elementary schools to 6 years has been rejected.

TERRITORIAL ARMY REDUCTIONS.

THE Secretary of State for War recently called together the Presidents and Chairmen of County Associations in order to announce to them the reductions in Territorial Army expenditure decided upon by the Army Council in consequence of the pressing demand for economy of public money. Part of this reduction, we understand, will consist in the disbandment of units and the consequent removal from the Active List of officers and other ranks who thus become supernumerary to establishment; there will also be a proportionate reduction in buildings. According to this plan of economy the number of Territorial general hospitals will be reduced from 23 to 3, and the number of casualty clearing

stations from 15 to 8. So far as the general hospitals are concerned, it is probable that all the existing units will be disbanded with the exception of the three to be retained. Further, each Territorial division will have only one field ambulance instead of three as at present; this is to be effected in the main by amalgamating the three existing divisional field ambulances to form a single unit. It is proposed to cut down the establishment of officers in the surviving medical units: Territorial general hospitals are to have 10 instead of 32 officers, clearing stations 6 instead of 12, field ambulances 6 instead of 8, and cavalry field ambulances 6 instead of 7. The establishments of "other ranks" will not be reduced in field ambulances, but slight reductions are proposed in the personnel of Territorial clearing stations and general hospitals. It may confidently be assumed that the wholesale disbandment of general hospitals goes far beyond any reduction in which the medical advisers would be willing to concur on grounds of safety and efficiency, and serious representations should be made when parliamentary sanction is sought for these economies. According to our information there is another proposal affecting the Territorial medical service which needs publicity. The reduction is small, but it appears to inflict a distinct hardship upon a number of Territorial medical officers. At the present time each Territorial Division has in peace time a headquarters medical staff of three officers: an assistant director of medical services, who is a Territorial officer and unpaid; a deputy assistant director of medical services, also a Territorial officer, but receiving pay for full-time services; and an adjutant, who is a Regular officer (with full pay and pension rights) and is attached to the Divisional school of instruction. It is proposed that the fourteen D.A.D.M.S. appointments shall be abolished and the holders thereof given two months' notice, the adjutants of the regular R.A.M.C. being retained. Since the appointment of D.A.D.M.S. was understood to be for four years, the Territorial officers holding them incurred domestic commitments, and we are strongly of the opinion that (assuming the economy to be necessary in the public interest) the notice given these officers is far too abrupt. We therefore hope that the medical members of Parliament will watch this matter when the Secretary of State for War makes his statement in the House of Commons. The Army Council has evidently made up its mind, but the final decision rests with Parliament.

A COURSE of advanced lectures in medicine by professors in the Faculty of Medicine of Paris has been arranged by the University of London, and will be given at the house of the Royal Society of Medicine, 1, Wimpole Street. The first, on March 20th, by Professor H. Roger, will be on the functions of the lung; at this lecture the Vice-Chancellor of the University, Sir S. Russell-Wells, will preside. The second, on March 23rd, by Professor A. Chauffard, will be on the humoral syndrome of gout; Sir Thomas Lewis, F.R.S., will be in the chair. The third, on March 27th, by Professor P. Duval, will deal with the present position of intrathoracic surgery; Mr. W. Sampson Handley will preside. The lectures will be given at 5 p.m. on the days mentioned. The course will be continued by other lecturers in May.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Geddes Committee Report.

The Government's Intentions.

THE Chancellor of the Exchequer, Sir Robert Horne, on March 1st reviewed in detail the recommendations of the Geddes Committee for the reduction of national expenditure, and announced the intentions of the Government. He said that when the Committee were asked to make suggestions for cutting down the Estimates by a hundred millions it was not expected that they would be able to do so much, but they were given a round figure to aim at. The cuts which they advised amounted to eighty-six millions sterling, and these he had to consider.

In regard to education, Sir Robert Horne said, the Committee recommended a reduction of eighteen millions, but part of that (about three millions) would be simply a transfer of burden from the taxpayer to the ratepayer. The two principal submissions were for a lowering of teachers' salaries and the exclusion from school of children under 6. The Government had decided that neither of these proposals could be put into operation. There was no doubt that the health of the children of this country had been immensely improved by the medical attention and the care which they had at school during these tender years; and it would be a grave injury to many of the homes in this country if, when women were battling with the difficulties of life in trying to support their families, they were forced to keep their children away from school, where at present they received the only mothering they could get. The Government, however, did see its way to save six and a half millions on the education votes. They accepted the proposal of the Geddes Committee that teachers should contribute 5 per cent. of their salaries towards their pensions, and this arrangement would yield nearly two million pounds. They were also in favour of increasing the size of the classes as far as practicable.

The Geddes Committee had recommended a reduction of twenty-one millions on the Navy Estimates, irrespective of what might result from the Washington Conference. Out of the suggested reduction of twenty-one millions only fourteen millions were in respect of specified items. The other seven millions were a kind of margin which might readily be represented by savings effected at Washington. Anyway, on definite figures there was a difference of only four millions between the Committee and the Admiralty, and this resolved itself almost entirely into the number of the personnel of the Navy. The number of men in the Navy now was 122,700; the Admiralty proposed to reduce it to 121,600; the Geddes Committee proposed 88,000. The Admiralty had since agreed to 98,000 men, and the Government held that this figure should be accepted. It would be quite impossible, however, to bring about this saving by March 31st of this year; on the other hand, he hoped that in the course of next year, still greater reductions in naval expenditure might be obtained.

As regards the Army, the Geddes Report advised a reduction of twenty millions, or £22,500,000 including the Middle East, but again there was a vague sum of £7,000,000 for unspecified reductions, therefore the reduction recommended was £15,500,000. Against that the War Office suggested a reduction of £17,000,000. The difference was on the question of numbers. The Committee advised a reduction of 54,000 men; the War Office accepted one of 33,000. Afterwards it was discovered that the 54,000 recommended by the Geddes Committee was based on a misapprehension, really due to a change of mind on the part of the Indian Government as to its necessities. The revised figure of the Geddes Committee therefore was 39,000, and the War Office proposal was 33,000; the Government could not recommend any further curtailment. For the Air Force the cut recommended was five and a half millions, including one million unspecified. The Air Minister proposed a reduction of three millions. The Government gave these recommendations to the House as those which could be most justified in existing conditions. The suggestion by the Geddes Committee that there should be set up a Ministry of Defence would be referred for consideration to the Committee of Imperial Defence.

Coming next to the portion of the report which dealt with the Ministry of Labour and the recommendation for amalgamation of Health Insurance and Unemployment Insurance, Sir Robert Horne said that preparations were being made for a complete investigation into the possibility of carrying out some such scheme. For the Ministry of Health the reduction proposed was £2,100,000, and that had been accepted. As to War Pensions, he was able to say that the administration had themselves put forward suggestions for a reduction of six millions, and these had been adopted both by the Geddes Committee and the Government. The saving was entirely effected by economies in the working of the department itself.

After referring to various other departments Sir Robert Horne, in summing up, said that for the purpose of comparison he deducted from the eighty-six millions aggregate recommendations the sum of fifteen millions for unspecified possible savings, and so reached a figure of £71,000,000. The Government accepted in all a reduction of £64,000,000, but that would include £10,000,000 attributable to possible savings as the result of the Washington Conference, and £1,000,000 saving on the supply of oil. This brought him down to £53,000,000, and the difference between the figures of £71,000,000 and £53,000,000 was £18,000,000. Of that, £12,000,000 were represented by the education reduction proposals of the Geddes Committee, which the Government could not accept, and beyond that there was only £6,000,000 between the Committee and the Government. Sir Robert Horne went on to say that with the savings already effected he hoped that the estimates for next year would be £181,000,000 less than the estimates for the present year, and in reply to Mr. Asquith as to how he got these figures he explained that for purposes of comparison he was including the supplementary estimates.

In the course of debate Mr. J. H. Thomas, for the Labour party, declared uncompromising opposition to any proposal to amalgamate health and unemployment insurance. Lieut.-Colonel Sir Arthur Warren advised caution in the consideration of such amalgamation.

Voluntary Hospitals Grant.

Mr. Gilbert asked, on March 1st, if the Hospitals Commission had now distributed the £500,000 voted to assist the voluntary hospitals, and whether there was an improvement in the position of the London institutions. Sir A. Mond replied that the Voluntary Hospitals Commission anticipated

that the grants made during the present financial year would amount approximately to £120,000, of which £87,900 had been paid to London hospitals. Applications for grants to the local Voluntary Hospitals Committee were dealt with as soon as they were received. Hospitals had been asked to expedite their application, but comparatively few had as yet been received, as their accounts for the year were not made up. Although the figures were not complete, the King's Fund estimated that the aggregate deficit for the London hospitals would be substantially less than in 1920, and it was probable that the same would be the case for the provincial hospitals. The Minister gave the following list of grants for London approved by the Voluntary Hospitals Commission up to February 28th, 1922:

	£
Canning Town	700
East London Hospital for Children	3,000
Elizabeth Garrett Anderson Hospital for Women ...	600
Royal Northern Hospital	11,000
Hospital for Epilepsy	850
Hospital for Sick Children	4,000
Infants' Hospital	1,000
King's College Hospital	9,000
London Hospital	10,000
London Temperance Hospital	2,000
Metropolitan Hospital	750
Middlesex Hospital	3,000
Mildmay Mission Hospital	400
National Hospital for the Paralysed	800
Prince of Wales's General Hospital	2,200
Queen Charlotte's Lying-in Hospital	3,000
Queen Mary's Hospital for the East End	1,000
Queen's Hospital for Children	2,100
Royal Free Hospital	12,000
Royal National Orthopaedic Hospital	3,000
Royal Waterloo Hospital for Women and Children	500
Samaritan Free Hospital for Women	800
South London Hospital for Women	800
University College Hospital	12,000
Total	£87,900

Higher Contributions for Health Insurance Dropped.

Mr. J. H. Thomas asked the Minister of Health, on Tuesday, March 7th, whether it was his intention to proceed with the bill increasing National Insurance contributions.

Sir A. Mond answered that in view of the objection to increasing such contributions in present circumstances he had obtained the concurrence of the Consultative Council on National Health Insurance in securing the economies in State expenditure on National Insurance recommended by the Geddes Committee, with certain other economies, on lines different from those suggested by the Committee. The proposal was that all State expenditure on National Health Insurance, with certain exceptions such as the cost of the central administration, the cost of audit, and the statutory two-ninths contribution, should be defrayed until December 31st, 1923, from the accumulated surpluses of approved societies. This proposal had been accepted by the Government, and legislation to give effect to it was being drafted. Between the present date and December 31st, 1923, the whole position would be reviewed.

The above announcement is in accordance with a forecast made in this column last week.

Criminal Law Amendment Bill.—The text of the Criminal Law Amendment Bill, introduced by the Home Secretary on February 8th, has been issued. It contains six clauses and a schedule. The principal proposals are that consent shall be no defence to a charge or indictment for an indecent assault on a child or young person under the age of 16, and that reasonable cause to believe that a girl was of or above the age of 16 shall not be a defence to a charge under Sections 5 or 6 of the Criminal Law Amendment Act, 1885. The maximum penalties imposable on keepers of brothels are to be increased to a fine of £100 or imprisonment with or without hard labour for a period not exceeding three months, and on second or subsequent conviction to a fine not exceeding £250, and to imprisonment with or without hard labour for a term not exceeding six months. In addition to suffering such penalties persons may be required to enter into recognizances with or without sureties to be of good behaviour for twelve months; or in default of entering into such recognizances may be imprisoned for a period of three months beyond the imprisonment already awarded. For Scotland different provisions are proposed. Indecent conduct which would constitute an offence in common law in reference to a girl under the age of 12 is to be reckoned in the case of an offence under the present measure, when a girl is between 12 and 16 years of age, whether with consent or not, and the offender is to be liable—on conviction or indictment—to imprisonment with or without hard labour for a period not exceeding two years, or on summary conviction to imprisonment for a period not exceeding three months. The penalties on conviction of brothel keepers are also changed. Another section of the bill proposes the repeal of the Punishment of Incest Act, 1908, which requires that all proceedings under the Act shall be held *in camera*.

National Insurance Funds.—At the instance of Mr. Rhys Davies, on February 28th, Sir A. Mond said that the total loss suffered in National Health Insurance funds by the conversion or sale of Consols and other securities purchased previously to December 31st, 1921, was approximately £1,800,000. The extent of the depreciation of securities held on December 31st, 1921, was approximately—on the basis of mid-market prices—£2,100,000. The amount of interest earned by the investment through the fund of moneys standing to the credit of approved societies on December 31st, 1921, was approximately £10,000,000, and the proportion credited to the societies £7,500,000. While the improvement in market prices went far to meet the losses and depreciation mentioned, it rendered the maintenance of the existing average yield more difficult, since new moneys had to be invested on less favourable terms.

Increase of Sickness amongst Insured Persons.—Sir Robert Clough inquired, on March 9th, whether the medical reports and statistics available in connexion with the National Insurance scheme indicated that any increase of sickness, particularly among women, was due to the prevalence of restricted means of livelihood arising from unemployment. Sir A. Mond said that the figures available as to the claims for sickness benefit amongst approved societies comprising about half the total number of insured persons showed that there was an increase in the number of weeks for which benefit was paid in 1921, as compared with the previous year, of 1.4 per cent. in the case of men and 8.4 per cent. in the case of women. Many factors must, however, be borne in mind in making a comparison between the figures for the two years and, in particular, the serious epidemic of influenza about the end of the year 1921. The material in the possession of the Ministry did not make it possible to state to what extent the increase might have been attributable to the cause referred to by Sir Robert Clough.

Irish Insurance.—Mr. Devlin, on February 27th, moved an address praying that the Order in Council dated January 31st, 1922, and cited as the Government of Ireland (Adaptation of Health Insurance Act) Order, 1922, be annulled. His complaint was that the British Government was handing over to the Northern Government the health services before the Southern Government had begun to function, and that according to the Act the transfer should be made simultaneously. Sir Hamar Greenwood, in reply, maintained that the action being taken was absolutely correct, and, indeed, was necessary in the circumstances. The staff in Northern Ireland was complete, ready to take over duties on March 1st, and so there would be no serious break in the administration in the North of Ireland. No more serious inconvenience would be caused in administering the Health Insurance Act by the Northern Parliament on the one side, and by the Southern on the other, than occurred in administering the Act in Wales on the one side, and in England on the other. Captain Redmond urged that it was wrong to divide an Act which was based upon area administration before the area itself had been properly defined. Mr. Devlin's motion was counted out.

Pensions Appeal Tribunals.—The Solicitor-General, on February 28th, moved a vote for a supplementary sum not exceeding £5,000 for salaries and expenses of pensions appeal tribunals. He explained that the original estimate provided for only nine tribunals, but in face of arrears it had been found necessary to increase the number to twenty-four. By the end of last year the accumulation had been cleared off, and four tribunals had been demobilized, but it was necessary at present to maintain twenty. Mr. Lawson moved a reduction of the vote by £100, on the ground, not that the additional tribunals were unnecessary in the existing circumstances, but because, in his opinion, if the Medical Boards and the Pensions Minister did their work rightly, cases which went to the Appeal Board would be settled. The Solicitor-General, replying to a rather discursive debate, promised that careful consideration should be given to the views expressed in favour of opportunities for a rehearing of appeals in particular cases. The vote was carried by 160 to 59.

Medical Treatment of Ex-Service Men.—Mr. Will Thorne, on March 1st, raised the case of casual dock labour, ex-service men, who need to attend a hospital and other institutions for treatment and cannot get allowances for expenses and loss of time—such loss of time arising because they have to be at a place of call for employment every morning. Mr. Macpherson agreed to meet the exceptional position by accepting the required certificate from the pensioner's usual employer, instead of, as in other cases, from the actual employer; a further relaxation of the rules was not thought practicable.

Appeal Tribunal Statistics.—On request by Sir R. Clough, the Minister of Pensions, on March 1st, gave the following statistics of the number of appeals finally rejected by the Pensions Appeal Tribunals for England and Wales, and the percentage they represented, in each of the last four periods of three months:

Period.	No.	Percentage.
February–April, 1921	3,981	71.5
May–July, 1921	7,351	72 0
August–October, 1921	7,943	72 2
November, 1921–January, 1922 ...	8,173	72.4

Conditional Pensions.—Major Tryon, answering a question by Mr. Gillis on March 6th, said that the personal and family allowances and other privileges granted under Article 6 of the Royal Warrant in respect of ex-service pensioners were in all cases conditional on the acceptance of the course of medical treatment which was considered necessary by the medical advisers of the Ministry. The Pensions Minister had to consider whether they could be continued at full rate where a course of treatment was interrupted against definite medical advice to the clear detriment of a man's condition.

Tuberculosis Cases.—In reply to Sir James Butcher, Major Tryon, replying for the Pensions Minister, said that the provisions made for ex-service men suffering from tuberculosis were not only adequate but exceptional. Generally speaking, in every active case of tuberculosis the man received the equivalent of pension at

the maximum rate, and where a pensioner had satisfactorily completed a prescribed course of treatment and training pension at 100 per cent. rate was granted for six months, followed by at least 50 per cent. for the next two years.

The Burden of Income Tax.—Dr. McDonald inquired, on March 1st, if the Chancellor of the Exchequer would endeavour in the next Budget to reduce the income tax by at least one shilling in the £, and so lessen the heavy burden borne by all taxpayers. Mr. Hilton Young said that the Chancellor of the Exchequer was not in a position to anticipate his Budget statement. Dr. McDonald asked if the Chancellor would apply the principle of the equality of the sexes to the incomes of husband and wife, taxing each separately according to individual means. Mr. Young responded that full recognition of the principle of equality was afforded by the provision by which either husband or wife could elect to have separate assessment. The Chancellor could not agree to the suggestion for separate ratings, as that would shift burden from the rich to the poor.

Pure Milk Supply.—In reply to a suggestion by Mr. Hurd, on March 1st, that a small committee should be appointed to consider the simplest means of ensuring the cleanliness and purity of the milk supply of urban areas, with a view to the amendment of the Act of 1915 before it was brought into operation, Sir A. Mond said he was in continual consultation with persons well qualified to express opinions, and was now considering the introduction of legislation. Viscountess Astor inquired whether, if proposals made by influential producers and distributors were put into an Act, towns would be able to adopt model clauses which would enable them to improve the milk supply at little cost to the taxpayer. Sir A. Mond said he thought that the bill now being prepared would meet the general view, and he would see, if possible, that it should cast no burden on the ratepayers.

Foot and Mouth Disease.—Major Barnston, in answer to Mr. Doyle on March 1st, stated that, as no method could be discovered of cultivating artificially the virus of foot-and-mouth disease or of identifying it, the inquiry into the means by which the infection causing sporadic outbreaks of this disease was carried had been discontinued. Circumstantial evidence pointed to the air or birds as the most probable carriers of the disease. The Minister of Agriculture, as already stated, was endeavouring to arrange for an international inquiry into the whole subject.

Venereal Disease.—Captain Elliot asked, on March 1st, what grants were being paid direct by the Ministry of Health to the National Council for Combating Venereal Diseases, and what, through the local authorities, on the 75 per cent. proportion of sums expended by them. Sir A. Mond said that the amounts paid up to date to the National Council for Combating Venereal Diseases during the current financial year amounted to £9,500. No grants were made direct by local authorities to the National Council.

Cancer Investigation.—Mr. T. Griffiths asked, on March 2nd, whether, in view of the increase in mortality from cancer and the urgent necessity for investigating the origin of the disease and the best form of treatment, the Prime Minister would consider the advisability of the appointment of a Royal Commission. Sir Alfred Mond said he was advised that a Royal Commission would not be a suitable body to undertake an investigation of this kind. Extensive research into the cause and treatment of the disease had for some time past been undertaken by various competent medical bodies in this and other countries.

Coroners Emergency Provisions Bill.—This measure received the Royal assent on March 2nd.

Clinical Thermometers Bill.—The bill introduced in the Lords had its third reading and was passed through that Chamber on March 1st.

Answers in Brief.

There are 302 ex-service men under notice of discharge from the Ministry of Health due to curtailment of work.

The Lancashire Asylums Board have recently afforded accommodation for over 2,000 mental defectives at the Calderstones Institution, Whalley, where facilities exist for dealing with all the children for whom it is the duty of the local authorities under the Mental Deficiency Act, to provide.

The convictions for drunkenness in the Metropolitan Police district in each month of the year 1921 were: In January, 2,304; in February, 2,073; in March, 2,357; in April, 1,961; in May, 2,163; in June, 1,878; in July, 1,801; in August, 1,962; in September, 2,751; in October, 2,615; in November, 2,502; in December, 3,040. Total, 27,410.

England and Wales.

New Sussex Hospital for Women and Children.

THE *Quarterly News-letter of the Medical Women's Federation* for February, 1922, contains an account of the opening of the new buildings of the Sussex Hospital for Women and Children, which, after having for some years carried on its work in temporary premises as a branch of the Lady Chichester Hospital, was opened by Lady Astor a short time ago. The new buildings comprise a large out-patient department, with waiting rooms, examining rooms, dental department, and venereal diseases department. There are two wards, each containing eight beds, for medical and surgical cases, into which patients are admitted at a minimum weekly charge of one guinea, and in addition there are ten private wards accommodating twelve or fourteen private patients, who pay from two to seven guineas a week. The operating theatre, with anaesthetizing room, sterilizing room, and surgeons' lobby, with separate dressing rooms, has been equipped in memory of Mrs. Martindale, who was the first to originate the idea of a Sussex Women's Hospital officered by women physicians and surgeons.

Courses on Tuberculosis at Manchester.

The regulations for the curriculum as well as the examinations for the diploma in tuberculosis of the Welsh National School of Medicine were published in our issue of February 25th, 1922 (p. 333). We have now received particulars of the advanced courses on tuberculosis instituted by the University of Manchester in 1912, in connexion with the course for the diploma in public health, by the late Professor Sheridan Delépine, who described their purpose in our columns in January, 1913. The acting director of the public health laboratory at Manchester informs us that owing to the war those courses had been interrupted, but that the certificate has been obtained by some sixteen medical practitioners, the majority of whom also held the D.P.H., at Manchester. The course extends over a period of not less than six months, and includes laboratory practice, supplemented by demonstrations and lectures at the public health laboratory; instruction in administration at health offices recognized by the university; and clinical instruction at tuberculosis dispensaries, hospitals, and sanatoriums recognized by the university.

Inspection and Treatment of London School Children.

Under the London County Council system of medical inspection, children requiring treatment or observation are reinspected about six months after the first inspection, and, if necessary, a second reinspection takes place at the end of a further six months. In 1921 the number of children examined in detail at elementary schools was 294,552, of whom 113,732 (or 38.6 per cent.) were noted as requiring treatment for one or more defects; teeth, vision, and nose and throat complaints accounted for most of these cases. In addition to the elementary school examinations, 2,255 children were examined at special schools, of whom 40.6 per cent. were found to need treatment for defects other than the disability which rendered attendance at a special school necessary; and 73,470 children were seen during the year as urgent cases, either at the schools, treatment centres, or local offices, and 26,425 of these were found to require treatment. At a first reinspection of children marked out for review there were 112,776 cases, of which 45.2 per cent. were regarded by the school doctors as discharged, and of 62,320 cases which came under the second review the school doctors reported that 60.3 per cent. had received treatment or no longer needed it. The results of the year 1921 are the best since the Council undertook the inspection and treatment of children. The report of the Education Committee states also that of every 100 cases receiving treatment 73 receive it under the Council's scheme, and the remaining 27 go to private practitioners or dentists or to hospitals not under the scheme. The full average cost of treatment is charged to the parents of fee-paying pupils in secondary schools who cannot afford to make private arrangements, and these charges, representing the cost of the treatment to the Council, are to be, for 1922–23, in the case of enlarged tonsils and adenoids, 9s. 8d.; minor ailments, 8s. 1d.; dental treatment, 7s. 2d.; *x*-ray treatment of ringworm, 25s. 4d. These rates show a reduction of 1s. 1d. and 5d. for minor ailments and dental treatment respectively.

Re-education of Tuberculous Ex-Service Men.

Dr. Noel Bardswell has submitted a report to the London County Council on an inquiry into the results of combined courses of treatment and training of tuberculous ex-service men. The report relates principally to the experience of ex-service men sent to training centres from the various metropolitan boroughs. During the period 1918 to 1921, 160 London men passed through the training centres at Papworth Colony, Nayland Colony, and elsewhere, but so far as could be ascertained not one of the men discharged home is now employed at the occupation for which he was trained. Some made an attempt to benefit by training, but failed for various reasons. Only nine men are employed in any newly acquired calling, twenty have resumed their original occupations, and the remainder—about 130—are unemployed and living on their pensions. The report submitted by Dr. Bardswell is believed to represent the first attempt by any public authority to ascertain the results of the scheme for the vocational re-education of tuberculous persons. The results are admitted

to be discouraging, but it is thought that the selection of cases for training is open to improvement, and it has also to be remembered that the experiment has been carried through at a time of exceptional difficulty, particularly as to the subsequent employment of those who have been trained.

REPORT OF THE CITY OF LONDON CORONER.

In his annual report for 1921, as coroner for the City of London, Dr. F. J. Waldo states that 570 inquests were held during the year, and that *post-mortem* examinations were carried out in all save 17 of the inquiries. Public inquests with juries numbered 305, the remaining 265 being investigated by the coroner without a jury. Dr. Waldo states that in all cases of violent death he is still a believer in the constitutional method of the coroner sitting in public with a jury, on the principle that an intelligent jury, as found in the city, directed by a coroner, is a better and more satisfactory tribunal in the public interest for the elucidation of truth than that formed by a coroner sitting alone. In his opinion, also, inquests are a mere farce without *post-mortem* examinations, and he thinks that inquests ought to be left alone altogether if not carried out in a thorough manner.

THE BRITISH INDUSTRIES FAIR.

The British Industries Fair, organized by the Department of Overseas Trade, has been held during the last fortnight at the White City, London. In a dozen large halls, accommodating altogether the exhibits of well over a thousand firms, almost every British product, from safety razors to aeroplanes, has found a place. From the medical point of view the exhibition was of interest on many sides, for it included a brave display of fine chemicals, alkaloids, disinfectants, surgical and dental apparatus, orthopaedic appliances, hospital furniture, opticians' supplies, and exact instruments for the laboratory, but even though the exhibits were classified to some extent, so that one went into one hall to look for miners' lamps and to another at half a mile distance for vaccines, the task of anyone who should attempt to describe the exhibition in detail would be stupendous. Here were twenty firms showing analytical and research chemicals, a number of others concentrating on sanitary preparations and druggists' sundries, and others again on perfumery and cosmetics; the chemical section, with its pyramids of salicylate and aspirin, and such objects of interest as the Burroughs Wellcome exhibit of the stages in the preparation of kharsivan, was very wonderful and engrossing. It was very closely rivalled, however, by the glassware section, for glass-making, both for artistic and scientific ends, is progressing quickly, and offers another illustration of British energy and resource in the face of no small difficulty.

CENTRAL MIDWIVES BOARD.

At a meeting of the Central Midwives Board for England and Wales, held on February 23rd, Sir Francis Champneys presiding, four midwives were struck off the roll. The chairman announced that the following had been re-elected as representatives on the Board by their respective bodies: Sir Francis Champneys (Royal College of Physicians of London); Dr. Griffith (Royal College of Surgeons of England); Dr. West (County Councils Association); Dr. Fairbairn, Miss Pearson, and Miss Pollard (Incorporated Midwives Institute); Mr. Sangster (Society of Apothecaries); Professor Briggs, Lady Mabelle Egerton, Miss Haydon, and Miss Le Gent (Ministry of Health). Letters were read from the town clerks of Bristol, Portsmouth, Stoke-on-Trent, and West Ham stating that their respective authorities support the action of the Manchester City Council in objecting to the carrying and administration by midwives of preparations containing opium. The Board decided to forward to each authority a copy of its resolution on the question passed on November 17th, 1921.

Scotland.

GLASGOW ROYAL ASYLUM.

IN his annual report Dr. D. K. Henderson, physician superintendent of the Glasgow Royal Asylum, stated that of the 151 new patients admitted during the year 92 were women. This predominance of the female sex, which had been observed during the past two years, was, Dr. Henderson suggested, to be explained partly as a reaction from the strain of the war years, and partly as the result of the high cost of living and the difficult economic and social conditions of life in these days. An interesting feature was the large proportion of voluntary cases (39 per cent. of admissions), which evidenced that the public was realizing more and more that the mental hospital was more than a mere custodial institution—it was a real hospital for the care and treatment of patients. The recovery and improvement rate reached 52 per cent., but Dr. Henderson thought that still better results could be obtained if cases applied earlier for treatment. During the year he had introduced a new grouping or classification of mental disorders, to bring it more into accord with modern ideas. He advocated a uniform scheme of classification to be used thoughout mental hospitals in order to facilitate ready comparisons in different parts of the country, and so lead to more precise data. In this psychological and psycho-analytic age they realized that mental disorders were not simply characterized by the expression of absurd delusions and hallucinations, or by odd, strange, bizarre conduct, but that these disorders were merely symptoms, the result of unhealthy or disorderly habits of thought which had developed gradually. The disorder was often the expression of a wish which had been unfulfilled. Some individuals, instead of meeting the actual difficulties of life, tended to fly from reality, and, in their mental disorder, seemed to attain those things for which they had been vainly striving in their ordinary conscious life. This same type of mental mechanism was in operation in ordinary life in the group who styled themselves spiritualists. Such were those who, instead of meeting the difficulties of life and facing its various isssues with common sense, sought to evade these issues like the patient of unsound mind, and fly to something mystical which they termed a "new religion," and about which they could really know nothing. In his opinion it would be of much more practical benefit to themselves and healthier for others if they devoted themselves to the study of the problems of everyday life, instead of trying to outline a hereafter. He referred to the treatment of epilepsy during the past year by luminal, a drug about the efficacy of which glowing reports had been made in America and in Germany. He considered that the results so far were inconclusive, because the number of cases was too small to allow an opinion to be based on them, but they were sufficiently satisfactory to warrant more extensive trial. The total number of patients under treatment during the year was 648, and the average number of residents 508. Of the 151 new patients admitted, 143 were private cases. Of "service" patients admitted to Gartnavel there had been in all 113. Of these, 14 have been discharged as recovered, 7 greatly improved, 3 not improved; 7 have been transferred to other mental hospitals, and 15 died, leaving 67 still under treatment.

CRICHTON ROYAL INSTITUTION, DUMFRIES.

The eighty-second annual report of Crichton Royal Institution by Dr. C. C. Easterbrook, its physician superintendent, shows that 1,242 patients were under treatment during 1921, that the number at the close of the year was 971 (442 males and 529 females), and that there were 636 private and 335 parochial patients. Of the private class 169 were voluntary boarders. Dr. Easterbrook, like Professor Robertson at Edinburgh, emphasizes the value of the early treatment of mental disease, and points out that under the law as it stands only private or "paying" patients can be admitted for treatment in mental hospitals as voluntary boarders; the rate-aided patient must be certified as a "lunatic" and become technically, at any rate, a "pauper" before he can gain entrance; obviously there are some reforms needed to put this matter right and give to rate-aided patients the chance of early treatment on a personal application for admission. The superintendent also pleads for the establishment of mental clinics in the general hospitals of the medical schools and main centres of population in the country as a prophylactic and curative measure for the treatment of incipient mental disease. Further, he points out that the United States with its National Committee for Mental Hygiene (founded in 1909) is far ahead of this country in its endeavour to prevent mental disease by spreading reliable information on the subject, and by trying in other ways to maintain mental health. During the year 77 certificated patients and 7 voluntary boarders died; the causes of death among the certificated were chiefly heart disease and arterio-sclerosis, cerebral apoplexy, exhaustion from mental disease, senile decay, pulmonary tubercle, and influenza with pneumonia. In 53 per cent. of the deaths the mental disease had lasted for longer periods than two years.

THE LISTER WARD.

The weekly meeting of the Glasgow Medical Lunch Club was held on March 2nd, the guest of honour being Mr. A. Ernest Maylard. After lunch he addressed the members on the subject of museums. He referred at the outset to his own interest in, and work connected with, museums throughout a long medical life. He emphasized strongly the instructive and educative part which such institutions play in conveying to the minds of all classes valuable information. He instanced as an example the Hunterian Museum at Glasgow University, a lasting memorial to the name of William Hunter, physician and anatomist, who, by his will in 1783, founded it. From that the speaker proceeded to refer to the proposed Lister memorial, and to that end more especially the retention of the original Lister ward in the Glasgow Royal Infirmary. He recapitulated the various steps which had been taken in the matter from the time when it was first proposed to retain the ward until now, and deplored the lack of wholesome sentiment which had led to the decision for its demolition. As one of those who had all along taken an active part in advocating its retention on its original site, he again made an impassioned appeal against its destruction, as thereby an invaluable asset would be lost to the Royal Infirmary, to Glasgow, and to the medical world. He summed up his appeal thus: "You cannot separate a part from a perfect whole without lessening the relative value of the divided portions. To remove the Lister ward from its inseparable associations with all that has made it and the Royal Infirmary one in the eyes of the civilized world is irretrievably to damage both."

South Australia.

(FROM OUR SPECIAL CORRESPONDENT.)

MEDICAL LEGISLATION.

IN an otherwise somewhat barren session Parliament has passed two Acts of some importance to the medical profession. The object of one is stated in the preamble to be to make better provision for the control and management of the Adelaide Hospital. The present Board of Management is to be replaced by a board of three, the chairman of which must be the Inspector-General of Hospitals. How in addition to his present duties Dr. B. H. Morris will manage to find time to supervise the hospital effectively remains to be seen. Legislators, however, seem to think that the new departure will prevent such incidents as deaths under anaesthesia and the occasional dismissal of a drunken man with an unsuspected fracture of the skull. Besides the triumvirate (which may include a member of the gentler sex) an advisory committee of seven members will be appointed to assist and advise the University Council and the Hospital Board as to appointments to the staff and other matters affecting the Medical and Dental Schools. The Act thus recognizes the importance of the hospital as a teaching school, whereas formerly the students were considered to be there very much on sufferance.

A short Medical Practitioners Amendment Act was also passed; the essential point in it is the power given to the Medical Board to establish reciprocity, and the adjustment of fees, with similar Boards in the adjoining states, as well as with the General Medical Council, if it be possible. At present an Adelaide graduate, who pays 5 guineas for perpetual registration, has to pay additional fees for permission to practise in other states, and, if he should go to England for six months to furbish up his work, he must pay another £5 for registration there, although he never intends to stay to practise.

Although the profession seemed inclined to boycott the Opticians Act, two distinguished specialists have been persuaded to join the Board and the examinations have commenced. The Nurses Board, under the new Act, has also come into existence, and is busy formulating rules and registering the old hands. The Venereal Diseases Act appears to be a dead letter at present, as no regulations have so far been gazetted.

THE UNIVERSITY.

Sir Joseph Verco has decided to retire from some more of his activities. He has refused reappointment (for the eighteenth time) as President of the Royal Society of South Australia, and he has also declined to be renominated as Dean of the Faculties of Medicine and of Dentistry, in which capacities he has rendered yeoman service to the University. He is succeeded as Dean of the Medical Faculty by Dr. W. T. Hayward, C.M.G. At the Adelaide Hospital the teaching staff is strengthened by the appointment of Dr. William Ray (a former Rhodes scholar) as full physician, though the retirement of Dr. H. Swift will be a distinct loss to the students. This year also Dr. T. G. Wilson succeeded to the Lectureship on Gynaecology vacated by Dr. J. A. G. Hamilton, who has retired from practice.

THE BRANCH.

The outstanding features of the year have been the appointment of Dr. Bronte Smeaton as President, the delivery of the Listerian Oration by Mr. Fred Bird, C.B., the distinguished Melbourne surgeon, who took for his subject the knee-joint, and the death of our much-beloved and respected colleague, Benjamin Poulton, the originator of the now extinct Inter-Colonial Medical Congress, and a former secretary and president of the Branch.

MEDICAL DEFENCE ASSOCIATION.

At the annual meeting of the Medical Defence Association it was reported that a medical man in the country had been assisted who appears to have been too outspoken in his utterances with regard to the competence of a nurse who ran a hospital in his district. After two days' discussion in the local court, the case was settled out of court. Another case had been mentioned in Parliament and had created much sensation, an unfortunate circumstance which could easily have been avoided but for the indiscretion of the operator who discovered the forceps in the pelvis which had accidentally been left there by another surgeon two years before.

India.

LEPROSY IN BENGAL.

THE Bengal Government has decided to establish a leper settlement for 1,000 persons. The settlement will be situated at some distance from one of the larger towns, and it will be attractively laid out. At present there is no question of compulsory segregation of any but pauper lepers in this colony, so that difficulties which might otherwise arise will be obviated. The cost will undoubtedly be great, but the value to the sufferers and the population will, it is anticipated, more than compensate for the expenditure. This action is none too soon, as the Collector of one district described as the "blackest spot of leprosy in India" gives an appalling description of the conditions which now exist under the present futile attempt at prevention and segregation. Leprous mendicants are at large everywhere, and many known lepers ply trades which, in the interest of public safety, are forbidden by the Lepers Act. This is not peculiar to this part of India; it is not remarkable that credible authorities state that leprosy is spreading from the lower to the middle classes. It is hardly realized in England that it is not uncommon for lepers to be present at village feasts, to sit on the common mat, and to share the same hookah with healthy individuals. They actually wash in the village tank, and, of course, freely handle the coins and paper money circulating in the shops.

INDIAN MIDWIFERY TRAINING.

The response made by the General Council of Medical Education and Registration to the representations of the Secretary of State and Government of India shows, says the *Civil and Military Gazette*, that that body had not been actuated by malice and uncharitableness and racial prejudice as certain speakers in the Legislative Assembly appeared to imply during the debate on the question last September. It could hardly be denied that there were valid grounds for its conclusion that the practical training in midwifery in Indian medical colleges fell a good way short of the reqnired standard. By agreeing to postpone its final decision on the question of recognition of Indian medical diplomas the Council indicated, it might be assumed, that it was prepared to take the special circumstances obtaining in India into account. It was admitted that the customs of the country, except possibly in Madras, made it difficult for Indian medical students to obtain much practical experience of midwifery cases. Even allowing for this difficulty, however, the Council would be sure to ask for definite evidence that the medical

colleges in this country had made genuine efforts to improve the standard of training in midwifery by every possible means before it consented to continue recognition of Indian medical diplomas.

A CHRISTIAN UNIVERSITY IN INDIA.

The directors of the Forman Christian College, Lahore, which is the largest missionary college in northern India, with the largest number of scholars among the colleges of the Punjab University, have very strongly urged the scheme for a united Christian university for the Punjab. In order to consider practical proposals a conference has been arranged between the board of directors of the Forman Christian College, representatives of the Indian Christian Association, the American missions, the Church Missionary Society, the Scots Church, the Methodist Mission, and some educational experts.

LIQUOR REFORM IN BOMBAY.

Among the regulations made by the Bombay Government to control the consumption of alcohol and to discourage excessive manufacture and sale of illicit spirits, is one which fixes the maximum quantity of "country spirit" which can be possessed by or sold by retail to one individual at a time. The maximum hitherto has varied in different parts from one to seven bottles. The Government have now decided that the quantity should be reduced to one bottle in all urban and municipal areas; and as regards most rural areas where shops are at a considerable distance, three bottles.

Correspondence.

THE HUNTERIAN LECTURE ON PROSTATIC ENLARGEMENT.

SIR,—I have read this lecture by Professor Kenneth Walker, published in the BRITISH MEDICAL JOURNAL on February 25th, with much interest, partly because it contains much new matter resulting from his valuable original investigations, and partly because he arrives at practically the same conclusions as to the pathology of the complaint that I did in 1910.

As my views were quite original I looked for some acknowledgement, but failing to find it I write to call Professor Kenneth Walker's attention to my paper read at the Liverpool Medical Institution, and published in full in the *Liverpool Medico-Chirurgical Journal* for July, 1910, and also in the *Lancet* for July 30th, 1910, with ten illustrations.

To show how similar Professor Walker's views are to those I had published, I append a copy of his printed conclusions and my own:

"(1) It is impossible to explain enlargement of the prostate by any theory of chronic inflammation alone.
"(2) Although enlargement may reproduce conditions favourable to the development of a neoplasm, the enlargement itself does not come into the category of true tumours.
"(3) The condition is in the nature of a fibro-epithelial degeneration which finds its analogy in the female sero-cystic disease of the breast.
"(4) This degeneration may be regarded as an accident occurring during the progress of involution of the genital tract.
"(5) The cause that determines the onset of the condition is unknown, although it is not improbably connected with a loss of endocrine balance occurring during this period."

"(1) The accepted theories as to the cause of prostatic hypertrophy all fail because each can only apply to a limited number of cases.
"(2) The prostate and breast are both controlled by their respective dominant sexual glands, and respond to their influence in a similar way in health and disease.
"(3) Both organs are subject to a disturbing influence at the climacteric period, which may, and frequently does, result in hypertrophic change.
"(4) In such change the microscopical appearances in the two organs show a remarkable resemblance in all essential details.
"(5) Prostatic hypertrophy, like the mammary involution hypertrophy, occurs only at the climacteric period, whereas there is no known neoplasm which is so strictly limited to an age-period.
"For these reasons I consider prostatic hypertrophy is not due to a chronic inflammation of septic or specific type, nor to a neoplasm, but that it is an involution change similar in character to that with which we are familiar in the mammary gland."

—I am, etc.,

Liverpool, March 6th. FRANK T. PAUL.

SIR,—I have read with interest Professor Kenneth M. Walker's lecture on the nature and cause of old-age enlargement of the prostate (February 25th, p. 297), and am pleased to find that his accurate researches do not give the lie direct to the position in which I find myself as regards the above subject as a general practitioner.

I think it is now almost universally admitted that the thyroid enlargement of young women is the response, in the first place, of the organism to the call for increased function. Since, in 1904–5, I successfully treated over a hundred young women with early soft parenchymatous goitre by the patient administration of small doses of thyroid extract, I have never had reason to alter my opinion that in the pathogenesis of goitre physiological hypertrophy plays a part. It has become a working rule with me that early enlargement of any gland connected with the endocrine system is a call for increased function, and I have applied it in the case of the early enlarged prostate. So I have given "Opocaps" prostate gland gr. 3, prepared by the British Organotherapy Co., in a few of these cases. It is no good giving thyroid extract to people with enlarged thyroids of long standing, and, similarly, the enlarged prostate must be in an early stage of physiological hypertrophy, such as, I submit, precedes formation of the so-called adenomata.

My contention is upheld by the fact that these people get relief from prostatic feeding. I have two men under my care—one a writer by profession, and the other an overwrought mechanic—who both have taken repeated courses of the preparation named. The first begins with his capsules when he feels the return of frequency and slight difficulty in micturition, and has been going on like this for two years. The second had persistent haematuria, copious and clotting, six months ago, for two weeks. He says that urination is becoming increasingly easier as he goes on with the treatment. The clinicians threw more light on the thyroid function than the researchers, and I should be much obliged if your readers who have used this remedy in really early cases where it is likely to do good would let us know their opinion, thus upholding, or the reverse, my—may I say?—analogical guesswork, that physiological hypertrophy plays a part in, or possibly is the main prime cause of, enlarged prostate.—I am, etc.,

Heaton, Bradford, Feb. 28th. A. F. MARTIN, M.D.

HAEMORRHAGIC COLITIS.

SIR,—The article under this heading by Mr. Geary Grant (February 25th, p. 308) raises a subject of particular interest. There can be no doubt that haemorrhagic colitis is a very definite form of colitis which often goes unrecognized. I gave a full description of the condition in my *Diseases of the Colon*, published in 1910, but there have been very few recorded cases since then, although at St. Mark's Hospital we get three or four cases yearly. Records of five cases are to be found in the *Transactions* of the Proctological Subsection of the Royal Society of Medicine (November 12th, 1913).

The two cases described by Mr. Grant are typical. Both were in young adults, the bleeding was profuse, and there was a serious anaemia; there was no pain, temperature was raised at night, and the patients became seriously ill.

The condition is easily diagnosed by means of the sigmoidoscope. In my experience no other condition imitates the appearance of the mucous membrane seen in this disease. Repeated bacteriological examinations have so far failed to demonstrate any specific organism, though in two cases an almost pure culture of *Diplococcus pneumoniae* was demonstrated in the discharges.

Mr. Grant says that in another case he would perform appendicostomy if the patient did not respond to medical treatment. I would advise him to do appendicostomy at once, as I have never seen any case recover from medical treatment, and it is most important that the appendicostomy should be done as early as possible, and not as a last resort, as is too often done. Appendicostomy is a life-saving operation in these cases, and should be performed directly the diagnosis has been established. As soon as the colon can be kept washed out from the appendicostomy opening the patient begins to recover and progresses with surprising rapidity. I differ from Mr. Grant as regards the method of closing the colostomy. Extraperitoneal methods of closure are uncertain and liable to cause subsequent trouble: resection and intraperitoneal closure is the better method, and should be quite safe where an appendicostomy opening already exists.—I am, etc.,

London, W., Feb. 28th. J. P. LOCKHART-MUMMERY.

FATS AND GOITRE.

SIR,—Colonel King (February 18th, p. 287) suggests that there are several localities in England where research on simple goitre could be undertaken, and mentions recruiting figures indicating that certain areas near Chester are endemic foci. One district of Cheshire is also referred to in Hirsch's *Geographical and Historical Pathology*.

As children are not exempt, the reports of school medical officers might be of value in determining areas of extraordinary prevalence. Some years ago, when a school medical inspector in Cheshire, covering the middle third of the county from north to south, I was greatly struck with the prevalence of simple goitre in some localities. To avoid the difficulty of deciding whether or not a thyroid was pathologically enlarged, I registered every case in which the outline of the gland was obvious on inspection, and the percentage among the children examined varied from *nil* in some areas to a maximum of 60 in one small school. I found a definite area of maximum prevalence, crescent-shaped, south of Nantwich, one horn of the crescent north-west of Nantwich, the other east of Crewe, with a second area of less intensity extending from Winsford eastwards to near Congleton. From my observations among parents, and from inquiries, adults appeared to be also particularly affected in these regions.

I regret that I left the district before completing what to me was a most interesting study.—I am, etc.,

C. R. GIBSON,
M.O.H. Guisborough, Yorks.

February 21st.

PREVENTION OF VENEREAL DISEASE.

SIR,—In the BRITISH MEDICAL JOURNAL of February 18th (p. 288) Mr. E. B. Turner and Mr. Charles Gibbs ask us to answer eleven questions:

1. Sir Archdall Reid cannot give "the total admissions to hospital of venereal cases under his charge *before as well as after* he initiated his plan of disinfection at Portsmouth." Before the date of initiation venereal disease had no special interest for him, and he kept no records. Doubtless, however, evidence exists which would furnish not only the information desired, but also material for testing every statement made by Reid—(*a*) the records of Hilsea Hospital to which *all* his venereal cases were sent, (*b*) the monthly reports of his A.D.M.S., and (*c*) the sick reports made daily to the officers commanding the troops in his medical charge. At first his cases were numerous, and for that reason he initiated his plan. The troops in his charge were throughout of exactly the same type as the rest of the garrison, and presumably suffered equally. In the year the plan was put into operation the general garrison rate of infection was 92 per 1,000. His own rate was 1.5. At a later date he offered to go at his own expense to any area in the kingdom in the confident expectation that he would be able to reduce considerably the incidence of venereal disease. Still later he offered, again at his own expense, to go to any port where men on leave from the Continent landed. Neither offer was accepted; but at least both afford evidence of willingness to put his plan to very stringent tests. Yet later he offered to go to the Rhine. This time the offer was accepted, with the proviso that he should work as a civilian. He was strongly advised by military officers of high rank to decline, as, without sufficient military status, he would be powerless.

2. Reid cannot "indicate how many men from Portsmouth during the period of his experiment were admitted to other hospitals for venereal disease contracted while in Portsmouth." But to the best of his knowledge and belief, not one man. Certainly not one of his men. It was in orders that all venereal cases must be sent to Hilsea Hospital. They would not have been accepted elsewhere. Nor can Reid say "how many men consulted private practitioners." The question is ridiculous. How should he know? Is there any reason for thinking that a greater proportion of cases consulted private practitioners in Portsmouth than elsewhere? Reid constantly impressed on his men the truth that they were not likely to receive such excellent treatment from private practitioners (including himself) as from the very competent specialists at Hilsea.

3. The evidence on which is based the statement "that throughout the Portsmouth area disease fell to the vanishing point" is contained in the weekly returns compiled for his own information by the A.D.M.S. of the area while testing the plan. Doubtless these returns are still in existence. In them disease locally acquired was carefully distinguished from that imported by immigrant troops. One of us has begged unavailingly for the publication of these returns.

4. This question involves a misstatement. We never said that Metchnikoff's method of aborting syphilis was particularly effective for prevention. In our opinion the quick use of any active antiseptic is better. We said only that his method, though already employed for prevention by Continental armies and the British Navy, was ignored by a Royal Commission appointed to study prevention. Either the Commission was ignorant of the method, or it wilfully ignored it.

5. We know nothing personally about venereal disease in Germany. But we ask on what evidence is founded the statement that there has been "six years of propaganda in Germany on the lines suggested by the Society for the Prevention of Venereal Disease"? Again, what is the evidence that (*a*) juvenile disease has increased in Germany (*b*) because juveniles have been taught to disinfect themselves? We understand that one gentleman from one town in Germany has stated that juvenile disease has increased in his town. He is a warm sympathizer with the N.C.C. and appears to copy its methods. Are there no other conditions in Germany (and Russia) which would account for the increased juvenile immorality and disease? In scorn of the N.C.C. and the Ministry of Health, more than a score of English boroughs have adopted the teaching of quick disinfection. We hear of no increase of juvenile disease in them.

6. We have already explained why it was thought hopeless to bring the question of prevention before the Royal Commission which began work in 1913. Neither of us gave evidence before it; but one of us who was a member of the N.C.C. resigned his membership after becoming aware in 1916 that the question of self-disinfection in men had been excluded from the deliberations of both the Royal Commission and the N.C.C. Before he took further steps in January, 1917, to bring the question before the public, he asked personally for the support of the ex-chairman of the Commission, of the Director-General of the Army Medical Services, and of a distinguished medical member of the N.C.C.; but his request was declined on the general grounds that public opinion would be hostile to such a movement. The S.P.V.D. has since proved the contrary.

7. Certainly we can explain why we "ignore salvarsan treatment as a factor in the reduction of the venereal disease rate which is apparent in the army and navy statistics of all countries from 1913 onwards, but is claimed by them to be entirely due to self-disinfection." Salvarsan has no influence on gonorrhoea which furnishes the great majority of cases. It may cure, but does not prevent even syphilis. The venereal rate of armies is calculated not on a basis of "constantly sick" but on the rate of infection. While the military rate was falling disease was steadily rising among civilians, from whom soldiers derive their infections. How, then, can salvarsan have influenced the rate of infection?

8. Certainly again we are willing to submit our figures "to the analysis and criticism of an independent expert." Indeed, we have been shouting from the housetops for just that kind of inquiry for the last four years. But even hostile "experts," even the ingenious statistician of the Ministry of Health, with all the evidence at his hand, have been discreetly silent. What, however, does this question mean? Our statements are founded on published accounts—for example, those by Sir James Barrett—all of which can be verified from the records of naval or military units. Is it suggested that the officers who made these easily tested statements were lying? The expert is welcome to the records.

9. This question has already been answered in our previous letter.

10. We would suggest that posters be exhibited in public lavatories warning the public against *contagious* disease, and instructing individuals when endangered to disinfect with speed and such care that the disinfectant shall reach into every cranny of the skin. These posters could be so worded that the innocent boy would think he was being warned against contagious disease—for example, scabies, sepsis—while the intending sinner would know that the advice was directed especially at him. Most men who sin are ready to seize opportunity. They regard a temptation resisted as a temptation wasted. Such people always discuss sexual matters among themselves and would learn what was meant by the posters. We do not for a moment suggest that juveniles shall be "personally" instructed.

11. Of course not. This question is merely rhetorical.

Systematic personal instruction was never given even in the army.

We do not "find it necessary always to impugn the *bona fides* of those who have arrived at different opinions from" our own. We impugn only the *bona fides* of those who have been caught in the act. We gave some examples in our first letter. The following is another characteristic instance:

"With a view of acquiring a full and adequate presentation of the case, the Committee invited medical representatives specially qualified from professional experience, as well as others who had taken an interest in the question, to meet the Committee or furnish them with memoranda of their views. Among those invited to give us the benefit of their experience or advice in this way were . . . Sir J. Barrett." (*Report of Lord Astor's Inter-Departmental Committee.*) "Is the information derived from that tainted source which cooked the statistics for the Inter-Departmental Committee of 1919?" (Archdall Reid, *The Times*, November 18th, 1921.) "I can assure him that all the evidence was examined impartially." (Lord Astor, *The Times*, November 22nd, 1921.) "Lord Astor . . . has since declared that the Committee was quite impartial, and published the statistics as received. But did it publish all the statistics? Did it even ask for them? Why, for instance, was Sir James Barrett's magnificent success, achieved on a grand scale under the most difficult conditions in Egypt among the Australians, not so much as hinted at?" (Donkin and Reid, BRITISH MEDICAL JOURNAL, February 11th, 1922.) "I am writing, therefore, to say I did not give evidence before that Committee, that I was not asked to do so, and that no communication from that Committee, either verbal or written, has reached me." (Sir James Barrett, *The Times*, February 21st, 1922.) "The Committee (as they stated) invited Sir James to give them the benefit of his experience and advice. Unfortunately he had already left for Australia, and they could not delay the publication of their report until they received a memo. from him." (Lord Astor, *The Times*, February 27th, 1922.)

It seems, then, that this impartial and candid Committee first invited the leading advocate and most successful teacher of quick disinfection to furnish evidence, next it ascertained that he had passed beyond reach, lastly, still in the exercise of its impartiality and candour, it announced that it had invited him. Meanwhile it collected (and published) evidence not of the successes in Egypt and France, but of the failure in England.

Mr. Turner and Mr. Gibbs suggest that self-disinfection did not succeed in Egypt. Let Sir James Barrett speak for himself:

"On the value of prophylaxis being challenged, an examination of those Australian troops who had been supplied with outfits established the fact that out of a group of 200 men exposed to infection only one contracted disease, and he had not taken precautions. In the lecturer's experience primary prophylaxis had been practically certain in its results."

—We are, etc.,

H. BRYAN DONKIN,
G. ARCHDALL REID.

London, March 3rd.

HOSPITAL POLICY.

SIR,—I gravely doubt whether the Leicester motion in its new guise[1] will be more acceptable to lay committees than it was before. Surely also it is futile to set up again the pretence of a fund for altruistic purposes after the frank confession of quite other intentions openly expressed at the Conference in December, 1920, and the candid admission of the chairman of the Hospitals Committee in his letter of December 24th, 1921. In truth, if this money is honestly earned why not pocket it? If it is not, why touch it at all? To all staffs who support this Leicester motion I would address a few plain questions:

1. Do you deny that your hospital appointment has been valuable, giving you opportunities, fame, and experience hardly to be obtained in any other way, and bringing in indirectly considerable income?
2. Do you deny that in consideration of these conspicuous advantages you deliberately undertook to treat the poor in this institution free of charge?
3. Dare you say that, having already reaped such benefits, and while still retaining these advantages, you are honestly entitled, without even consulting the other party to the contract, to publicly repudiate your part thereof, merely because, under stress of financial difficulties, it is found necessary to induce a poor man to subscribe 2s. 6d. a week towards the cost of his child in hospital, such sum being less than the cost of that same child at home when in health?
4. Do you consider it compatible with your dignity, and that of your profession, that 3d. of this 2s. 6d. should be weekly divided among the staff?
5. Do you claim your share of tea, butter, and potatoes contributed for maintenance; and if not, why not?

To those who would reply in the affirmative to these inquiries I have nothing to say; to others I would suggest an alternative procedure by alteration in the suggested scheme as follows:

Section VI, Para. 19a.—"*Free Patients.* Those who can produce evidence that they are unable to contribute more than their bare cost of maintenance, as distinct from treatment."

Section XII, Para. 33.—"In the event of decisions being taken which would lead to patients (other than private patients referred to in Section IX) paying in part or in whole *the cost of treatment*, in addition to that of maintenance, either individually or by some contributory method, a percentage of all such payments should be passed," etc.

The essential feature of three grades of patients would still be preserved, but there would be more of the "Free" and fewer of the "Tariff" class, and we might still haply retain our title of "Honorary." Also the word "maintenance" is vague enough to allow latitude to suit opinions in various localities. I would reiterate my opinion that before demanding even this concession and, *a fortiori*, before requiring more, representatives of lay committees should be formally consulted. Surely if these gentlemen, who are really the only persons entitled to speak with expert experience and authority upon such a topic, tell us frankly that, in their considered opinion, the Leicester motion would shatter the success of their appeals to the public, wither up subscriptions, and generally knock the bottom out of the voluntary system, it is mere humbug to pretend that we are supporting the voluntary system, while pressing such a demand. Conversely, if they differ from the Cave Committee, and approve the motion, the latter at once gains immensely added prestige.

With regard to para. 34, in view of the wealth recently disclosed, there is much to be said in favour of this motion as regards approved societies, nevertheless, as a matter of justice and policy, would it not be well to confer first with some persons representing them? Their members now number about 12,500,000; they control and dispense millions of money, can influence millions of votes, and bring much pressure to bear on the Minister of Health. Only lately he personally met and addressed in complimentary terms representatives of the industrial approved societies at their annual conference, and they were afforded a reception by the Lord Mayor at the Mansion House. To me it has always seemed a quite extraordinarily unpractical and unbusinesslike arrangement that of the three parties concerned in the practical working of the Insurance Act—the panel doctors, the Insurance Committees, and the approved societies—the panel doctors and the British Medical Association should each have their separate annual conferences, the Insurance Committees and their clerks have each their separate conferences, the industrial societies and the other combined societies have each their separate conferences, and on no solitary occasion should the least attempt be made to bring these various parties together, in order to discuss their mutual and, to a large extent, quite identical interests. Surely a combined conference at least once a year would be useful, and might bring much pressure to bear upon the Ministry in favour of any necessary reform. A friendly discussion of this hospital problem between two of the parties might pave the way to such alliance. "Public authority" would naturally apply both to the State and to county councils, etc., and their cases would come under para. 34, and not under 33, where they are out of place.—I am, etc.,

Chichester, Feb. 26th. G. C. GARRATT.

A DIPLOMA IN TUBERCULOSIS.

SIR,—In a note on the above subject you characterize as "remarkable" the recent multiplication of diplomas in special subjects. Very regrettable also I think many must feel it to be, and it is satisfactory to see that an acknowledged leader, Sir Robert Philip, is of this opinion. We have already special diplomas in public health, radiology, tropical diseases, ophthalmology, and psychological medicine, and now we hear of the creation of a diploma "in tuberculosis." In spite of the arguments in its favour cited by Professor Lyle Cummins this new diploma would seem both unnecessary and undesirable. May we expect in the future similar diplomas in venereal diseases, dermatology, laryngology, infant welfare, etc., for which there would appear to be equal justification? The unfortunate newly qualified man of the future, instead of occupying those first most valuable years in the acquisition of clinical experience, unhampered by examination requirements, will need to go about collecting such diplomas (each at the cost of a ten or twenty guinea fee) as he may think necessary in the line of practice he is taking

[1] BRITISH MEDICAL JOURNAL SUPPLEMENT, February 25th, 1922.

up, or, if he is a candidate for public appointments, as he may consider will most impress the selection committee.

Surely this is a tendency in the wrong direction. What is wanted in medical education? Is it not a training as complete and thorough as possible in general medicine and surgery for every student? The rest is but common sense and experience, of which he cannot have too much, but which no course for a diploma, still less the diploma itself, can give. Tuberculosis is a part—a very considerable part—of the ordinary curriculum in medicine, surgery, and pathology, and should be taught, in relation to other diseases, in general hospitals, and not as though it were something rare and strange. If there is an extra subject in which a special course is desirable for would-be tuberculosis officers, it is in what one may call social science, the machinery of the Poor Law, the complexities of organized charity, the economics of working-class households, and the like. But this most useful branch of knowledge does not appear to be included in the course for the T.D.D. Wales.

I submit that special diplomas in tuberculosis are undesirable for the following reasons: (1) Men wishing to enter the tuberculosis service might be encouraged to concentrate too early on the specialized work for the diploma, to the exclusion of general hospital experience. (2) Students and general practitioners of the future might come to regard tuberculosis as a highly specialized side line, something of a mystery revealed only to the elect, just as public health is looked upon to some extent as the exclusive interest of men holding the D.P.H., whereas it should be the affair of us all. Even now there is a tendency, for which State treatment is doubtless responsible, on the part of some general practitioners, to feel that his responsibilities in a tuberculosis case begin and end with notification. Yet the responsibility for early diagnosis and for the major part of the treatment of tuberculosis rests, and must always rest, with the general practitioner. To him Osler addressed these words: "The leadership of the battle against this scourge is in your hands."—I am, etc.,

Brighton, March 6th. A. NEVILLE COX.

THE VIRULENCE OF DIPHTHERIA-LIKE ORGANISMS.

SIR,—In the interesting record of work by Dr. Eagleton and Mr. Baxter on the virulence of diphtheria-like organisms (BRITISH MEDICAL JOURNAL, January 28th, p. 139) the results indicate that on morphology alone the *B. diphtheriae* still cannot be determined. These workers include as *B. diphtheriae* (morphologically) eight strains of *B. xerosis* and fifty-three other avirulent strains. No indication is given of what criterion is taken to justify inclusion on morphology. One cannot admit *B. xerosis* on morphological grounds. It bears resemblance to, but is morphologically distinct at all stages and culturally readily to be distinguished from, *B. diphtheriae*. Asserting this, one may ask, what are the characteristics of the fifty-three avirulent strains? May not they also be morphologically distinct when a standard of comparison is adopted? Working on diphtheria in 1908–10, I was accustomed to rely on a standard which I have always attributed to my master, Delépine. This test, which satisfied me as capable of eliminating the (virulent) *B. diphtheriae* from all "likes," was the simple one of comparing the sixteen-hour culture (or subculture) on Loeffler's medium, stained briefly with half-strength Ziehl-Neelsen solution and immediately washed.

I should be surprised to learn that this criterion still allowed the inclusion of 53 avirulent *B. diphtheriae* out of 105 cultures.—I am, etc.,

Riga, Feb. 22nd. ANGUS MACDONALD.

INFLUENZA.

SIR,—Each influenza epidemic may well be a new disease, so different are the symptoms. It appeared here first in some of the most lonely and out-of-the-way cottages. In almost every case there was a history of a "common cold" for five or six days. Then quite suddenly there were the symptoms of pyrexia, followed in a few hours by intense pain between the shoulder-blades and a brown furred tongue. This pain was described as burning in character, and often overshadowed all other symptoms. Sometimes there was vomiting and diarrhoea. There was generally some cough, but this seemed a relic of the previous catarrh. Among some three hundred cases there were only ten with serious lung trouble. These had the symptoms of acute lobar pneumonia, but with the physical signs of bronchopneumonia, very like acute phthisis; five ended with crisis, and three died.

The impression left on my mind was that the preceding catarrh was not the influenza but a predisposing cause. I should feel inclined to say, "Don't catch cold, and you won't have the influenza."

Relapses were common, and several took place before the patient had left his bed. Two were in bed with a "common cold" when the influenza attacked them, and many did not go to bed at all, and yet did quite well. There was nothing to show that the lung cases were due to early neglect.

Its sudden appearance in scattered homesteads made a contagion theory difficult. One was inclined to accept the theory that it comes out of the earth periodically. A number of cats died in the village during the epidemic from some unknown cause.

It disappeared as suddenly as it came, but has left a number of patients suffering from brown-furred tongues and loss of taste and smell.—I am, etc.,

Silverton, Devon, March 6th. O. CLAYTON JONES.

X-RAY TREATMENT OF CANCER.

SIR,—Will you kindly allow me to disclaim the views on the treatment of cancer by *x* rays attributed to me in the brief summary of my remarks furnished to you and published in the JOURNAL of February 25th (p. 314) on Dr. Ward's paper read at the Oxford Medical Society?

Though I pointed out the dangers of these massive doses on the blood and intestines, I certainly did not express the opinion, nor do I hold such a view, that the Roentgen-Wertheim technique is "much too risky" for the treatment of uterine cancer.

Neither did I express an opinion in favour of the divided dose method for the treatment of cancer, but I pointed out that in non-malignant cases the divided dose method was to be preferred, and quoted in support of this view the valuable statistics published by Béclère of the treatment of uterine fibroids by small and repeated doses of *x* rays. Béclère has shown that in 400 cases treated by the *x*-ray sterilization of the ovaries, in 202 cases the periods ceased after twelve applications of these small doses, but in six of the patients thirty-one to fifty radiations were required to bring about this result. Now Wintz and Seitz, administering the same dose irrespective of the age of the patient, bring about sterilization by means of a single massive dose of *x* rays, therefore it follows that in more than half the cases treated by the massive radiation, a dose of *x* rays of three or four times the necessary strength is administered.

So far as we are able to judge at present it appears probable that the future treatment of cancer by *x* rays will be by a technique resembling the single and massive dose of Wintz and Seitz, but that non-malignant growths and diseases will be best treated by a radiation of more moderate strength administered in divided doses.—I am, etc.,

Oxford, Feb. 25th. W. J. TURRELL.

SUICIDE IN BORDERLAND CASES.

SIR,—While it is certain that Dr. S. E. White desires to do everything she can to benefit those who suffer from mental diseases, she has done what can only have the effect of hurting their susceptibilities. As she points out, many of these sufferers are extremely sensitive. With the laudable intention of avoiding unnecessary pain the Government changed the name of a Department to "Board of Control." Dr. White persists in referring to this Department as the "Lunacy Board," although it is now seven years since that title was abolished. This is not a small matter to morbidly sensitive people, and when one is "out" to criticize others and to effect reform, then even small blemishes show up strongly and create an unfavourable impression.

Dr. White, in most praiseworthy fashion, has qualified her original statements regarding suicide and the treatment of melancholia. Should she not now also qualify those regarding the "Lunacy Board"? As they stand, they give to a complete outsider the impression of animus. This is surely detrimental to her great cause.—I am, etc.,

February 25th. M.D.

THE NAVAL MEDICAL SERVICE.

SIR,—I have no axe to grind and am not labouring under a sense of grievance, but I do think that when we honestly know or believe a system to be wrong it is a duty to say so, and keep on saying so until the wrong is righted. "Experto Credo's" letter interests me. I should like to know how many senior medical officers are being "turned down."

If one had only to consider the future of the Naval Medical Service one could afford time gradually to attempt to instil into red tape the old, old arguments concerning social position and the relative importance of the executive and civil branches; but if a gross injustice is being perpetrated by the Admiralty on old and tried medical officers, I think an immediate explanation is called for. Any conscientious objector during the war could get a question asked in the House; possibly the same privilege could be obtained for those who did their duty.

In my opinion the blending of the Navy, Army—and now Air—Medical Services (as I adumbrated some time ago) is the final solution.—I am, etc.,

Sevenoaks, March 4th. GERALD SICHEL.

HOLLOW VISCERA AND VESSELS: CURVATURE AND PRESSURE.

SIR,—In connexion with Sir Robert H. Woods's letter (March 4th, p. 370) I should like to ask if, in the consideration of the mechanical efficiency of the hollow viscera, there is not another important factor that must be taken into account—the force of the muscular contraction. Within limits the lengthening of muscle increases the strength and energy of its contraction. To quote from Professor Starling's Linacre lecture (Law of the Heart): "The energy of contraction, however measured, is a function of the length of the muscle fibre." This being so, the tension in the wall of a contracting viscus would not necessarily remain the same. That is to say, t in the equation $2t = pr$ would not be a constant and p would not vary inversely as the radius of curvature. It might not, of course, follow that the lessened energy of muscular contraction would cancel the increased mechanical efficiency due to the increased curvature.—I am, etc.,

Hull, March 5th. E. E. LASLETT.

ASTHMA AND THE MENOPAUSE.

SIR,—In your issue of January 7th (p. 12), Dr. MacBean Ross gave a very interesting account of a case of asthma and aggravated nasal trouble, following the production of artificial menopause by radium treatment, which benefited markedly by ovarian extract treatment.

Asthma frequently occurs during pregnancy in those who never had it before, as also trouble of the nasal passage, especially hypertrophy of the turbinates. In a paper on the toxaemia of pregnancy[1] I have shown that these conditions are due, not directly to ovarian insufficiency, but to hyperpituitarism, caused by this ovarian insufficiency. As in acromegaly, hyperpituitarism produces hypertrophy of the mucous membranes of the upper respiratory air passages,[2] and this is the immediate cause that is responsible for the frequent occurrence in pregnancy of hypertrophy of the turbinates, deafness, intractable cough and asthma.

In Dr. Ross's case, the artificial production of sudden cessation of the activities of the ovaries and of the uterine mucosa brought about a condition analogous to pregnancy with its concomitant tendency to asthma and nasal trouble, and this was the more easily precipitated in this patient as she had a strong predisposition to both affections.

Ovarian hormone, acting antagonistically to that of the pituitary, explains the marked benefit derived by the administration of ovarian extract.—I am, etc.,

Capetown, Feb. 8th. S. E. KARK, M.B., Ch.B.

TREATMENT OF EMPYEMA.

SIR,—The treatment of empyema is again being discussed in your correspondence columns. It seems evident that the results obtained nowadays are not generally satisfactory. May I once more urge a return to the older method of opening an empyema always well in front of the mid-axillary line? I am confident that if this old rule were again observed there would be fewer cases of persisting sinus.—I am, etc.,

Bromsgrove, March 5th. H. CAMERON KIDD.

[1] South African Medical Congress, October, 1921.
[2] *Biedl innere Sekretion*, p. 322.

"SACRACHE."

SIR,—Your reviewer of Dr. F. J. McCann's book in to-day's JOURNAL blames the author for "perpetrating" the hybrid word "*sacrache*" for "pain over the sacrum."

But Dr. Matthews Duncan used the word, and used it habitually. It is of no new coinage. In his *Clinical Lectures* there is an article on "'Sacrache' and backache" on pp. 442–3 [in my copy, which is dated 1886]. The volume is dedicated to Sir Clifford Allbutt—too good a master of English to object to a vivid word which sums up much in little.—I am, etc.,

Holmes Chapel, Cheshire, March 4th. LIONEL JAS. PICTON.

RESUSCITATION AFTER APPARENT DEATH.

SIR,—Whilst I was in practice in Paris I had in November, 1895, the singular experience of bringing back to life a woman who had been apparently dead for two hours, and on three other occasions of snatching from death patients who were apparently dying when I was called in.

The first case, an English lady, Mrs. X., aged 50, was diagnosed to be suffering from cerebral gumma pressing on the optic tract and the front of the medulla oblongata. Hemiplegia and double strabismus, daily increasing in intensity, with asthenia, were the principal symptoms; potassium iodide in a tonic and good food, the treatment. On the morning of her apparent death there were no indications of her approaching end. At 4 p.m. I was hurriedly summoned, as the attendant said she was dying; but for two hours I was not able to leave an operation I was performing. When I arrived at her house at 6.15 I found her apparently dead, and already "laid out." The attendant said soon after the message summoning me had left, the patient had died.

Whenever I visited cases *in extremis* I always carried in my handbag strychnine, ether, caffeine, ergotinine, and syringes, and brandy. In those days adrenaline and pituitrin were not known; at all events opotherapy was in its infancy. There was no doubt about it that the patient was dead, there being no radial pulse, no heart movements, and no respirations, the usual film over the eyes, and the skin greenish-grey, though it was still warm. On this last indication, and also on account of the unexpected death, I resolved to try and resuscitate the patient. I injected 1/60 grain of strychnine under the left breast, thirty drops of ether under the right breast, and twenty of caffeine under the clavicle; after giving a warm enema of black coffee and brandy we chafed the cardiac region, and rubbed the raised limbs from extremities to trunk with hot brandy. Half an hour after, I repeated the injections, and we persevered with the friction, when suddenly the patient moved her foot; and thenceforward colour returned to the skin, the heart and lungs began to work, the film over her eyes disappeared, and in half an hour more she spoke. We removed her to a warm bed and wrapped her in blankets, with hot bottles by her sides, and she lived for twenty-four hours, becoming gradually unconscious two hours before she finally died. I offered to try and bring her to again, but the husband refused. The cause of death was no doubt due to the invasion of the fourth ventricle by the gumma. Unfortunately no *post-mortem* examination was made.

The second case was an Irish governess, Miss R., aged 24, with gastric ulcer, to whom I was called on Christmas Day, 1896. She was said to be "vomiting basinsful of blood." As I ascended to her mother's apartment I met two fellow physicians, who said: "You are too late, she is dying: there is nothing to be done." However, I went in, and found a priest giving extreme unction to the patient. As soon as I was able to examine her I found that although she looked livid, and the film was on her eyes, and there was no reflex, yet there were shallow breathing and an irregular feeble pulse, scarcely perceptible, and the body was still warm. I did for her what I had done for Mrs. X. the year before, with the addition of an injection or two of ergotinine of Tanret, and a teaspoonful of pounded ice mixed with half a teaspoonful of Pond's extract of witch hazel (a teaspoonful by the mouth) every ten minutes. In an hour the rosy colour of the skin reappeared and her heart and lungs began to work, and she spoke. I saw her ten years after and she was looking strong and well.

The third case, Mrs. B., an American lady addicted to alcohol. An enlarged and tender liver, fatty heart, severe dyspepsia, and painful haemorrhagic diarrhoea were her principal symptoms. On the third day after I had been called in I was summoned by telephone to her hotel; her attendant said she had fainted after coming from the closet. I injected ether and strychnine, as the pulse could not be felt, nor the heart beats heard, and respiration was by gasps; the livid appearance of approaching death spread over her face, and I felt sure the shock and weakness resulting from a painful stool, in her alcoholic condition, had been too much for her degenerated heart. I injected under the skin of her abdomen a pint of artificial serum (Hayem's prescription) and repeated that dose and also the other injections ten minutes after, and gradually she came to, and in less than three-quarters of an hour was out of danger. She left Paris a fortnight later on, and I have never seen her since.

The fourth case: Mdlle de S., a French lady, aged 32, had been operated upon for carcinoma of the uterus, and three years after, when I first saw her, there was recurrence of the growth, which had involved the right ovary and spread to the right iliac fossa. One morning whilst lifting a can of water she felt something snap inside the tumour, and although there was not much pain she felt faint. On examination a couple of hours after, I came to the conclusion she was bleeding internally. Her pulse was 100, and of low tension, soft, and regular. I injected ergotinine of Tanret, put an ice-bag over the hypogastrium and right iliac region. I repeated the injection an hour after, but as she became paler and the pulse beat faster, besides giving her a third injection I administered Pond's extract with pounded ice every ten minutes. Four hours after the accident the pulse was 120 and could scarcely be felt, and the patient had become unconscious. I then injected under the skin of the abdomen two pints of artificial serum (sodium chloride), and within five minutes the pulse had returned, and gradually slowed down to 100. An hour after I again gave one pint of the serum, and consciousness returned. Eight hours after the accident the pulse was 90, and she fell asleep. The next day the pulse was normal. Evidently a large, firm clot had formed around the ruptured blood vessel, and had stopped the haemorrhage. The serum at the critical moment had helped the circulation and saved her life. She lived several years after this.

I think a correspondence on this subject from men who have had similar experiences might result in saving life that would easily be sacrificed through want of patience and perseverance on the doctor's part.—I am, etc.,

D. E. ANDERSON, M.D., B.A., B.Sc.Lond.
and Paris, M.R.C.S., F.R.S.E.,
Honyman-Gillespie Lecturer to Mansfield College, Oxford.

London, W., Jan. 30th.

Obituary.

BENJAMIN MOORE, D.Sc., M.R.C.S., L.R.C.P., F.R.S.,

Professor of Biochemistry in the University of Oxford.

THE news of the premature death at the age of 55 of Professor Benjamin Moore will be received with universal regret. It occurred on March 3rd from heart failure following an attack of influenza last January. He received his early education partly at Queen's College, Belfast, and partly at University College, London, where he was a pupil of the late Sir William Ramsay, and worked for five years in the chemistry department. He was for a time teacher of physiology in the medical school of Yale College, New Haven, but returned to London to become lecturer on physiology in the medical school at Charing Cross Hospital. In 1902 he was appointed to the newly founded Johnston Chair of Biochemistry in the University of Liverpool, the first of its kind to be established in this country. He retained this appointment until 1914, and it was while occupying it that many of his most important contributions to biochemistry were published. He contributed an article on the chemistry of digestion to Schafer's *Textbook of Physiology*, and another on the energetics of cell secretion and nutrition to Hill's *Recent Advances in Biochemistry*. He was one of the founders of the *Biochemical Journal* and a frequent contributor of important articles to its pages. He was, during a time of great expansion, Dean of the Medical Faculty of the University of Liverpool, an office in which he rendered good service. He was elected F.R.S. in 1912.

In 1914 he resigned his chair in Liverpool to become a member of the staff of the Department of Applied Physiology of the Central Research Institute of the Medical Research Council. During the war much of the energy of the institute were given to problems it raised, and Moore took a leading part in investigations carried out in co-operation with the Health of Munition Workers Committee and the Factory Department of the Home Office into the action of various poisonous dusts and vapours arising in the process of munition manufacture. During 1916–17 he undertook the direction of inquiries of the utmost importance with regard to T.N.T. poisoning. The investigations included not only work in laboratories but many inquiries at different factories, in which the laboratory results were given a practical application and a variety of protective methods devised and studied. In 1918 he published the results of his work on photo-chemical syntheses; part of it, done in conjunction with Mr. T. A. Webster, was related in a paper in the *Proceedings* of the Royal Society on the action of light rays on organic compounds, and the photo-synthesis of organic from inorganic compounds in presence of inorganic colloids. At the same time he was determining some of the elementary chemical conditions necessary for the growth of algae. Later on, in conjunction with a number of colleagues, he was able to show that both fresh water and marine algae, unaided by bacteria, were able in summer to fix nitrogen from the atmosphere, and incidentally advanced evidence to show that the so-called "active oxygen" of fresh country air is not ozone, but nitrogen peroxide, probably formed by ultra-violet light causing direct union of nitrogen and oxygen. These researches, which were continued in subsequent years, and upon which he published a number of papers, confirmed his interest in inquiries directed to ascertain the origin of life on the earth. It had, perhaps, first been aroused during his frequent visits to the Marine Biological Station at Port Erin in the Isle of Man. His latest publication was entitled *Biochemistry, a Study of the Origin, Reactions, and Equilibria of Living Matter.*

Less than two years ago he was appointed to the chair of biochemistry at Oxford, founded by Mr. Edward Whitley. In his earlier years his work was assisted by grants made by the Science Committee of the British Medical Association, and since 1917 he had been a member of that Committee and an active worker on its Subcommittee on Medical Research and Laboratory Workers. In 1912, when the annual meeting met at Liverpool, he was vice-president of the Physiological Section.

Moore gave a great deal of time, energy, and thought to the borderland of medicine and sociology. His interest in such questions and in the British Medical Association led him to accept office as representative of the Birkenhead Division; in that capacity he took an active part in the Representative Meetings in 1909–10, and again in 1910–11. He wrote much in many publications on medico-sociological subjects, and his views were summarized in a book entitled *The Dawn of the Health Age.* When the Association held its annual meeting in Cambridge in 1920 he was a vice-president of the Medical Sociology Section.

Benjamin Moore was a man of volcanic energy which found many outlets, perhaps too many, but he has left his mark upon the department of science to which he specially devoted himself—that of biochemistry.

ALFRED HILL, M.D.,

Formerly Medical Officer of Health for Birmingham.

DR. ALFRED HILL, who died on February 22nd, aged 95, at Freshwater Bay, Isle of Wight, was believed to be the oldest member of the British Medical Association, having been elected in 1853. He was born in 1826, and at the age of 16 he was articled to his uncle, Mr. Joseph Heeley, a surgeon at Stone, Staffordshire. He became a medical student at Birmingham, and took the diplomas of L.S.A. and M.R.C.S.Eng. in 1850, graduating M.D. at King's College, Aberdeen, in 1854. In 1851 he was elected to the chair of chemistry, and later to that of toxicology, at the Sydenham College Medical School and Queen's College, Birmingham. Ten years later he was appointed public analyst, and when the Public Health Act of 1872 came into force he was appointed medical officer of health of the city of Birmingham. Dr. Hill assisted in the important work of setting up a proper system of sewage disposal in Birmingham, and he was the author of many articles on subjects connected with public health. He was a former president of the Society of Public Analysts and of the Society of Medical Officers of Health, and he played a leading part in the development of the public health service in this country. He retired to the Isle of Wight in 1903, when he resigned the post of medical officer of health. His surviving sons include Dr. Bostock Hill, consulting medical officer of health for Warwickshire and emeritus professor of hygiene and public health at Birmingham University, and Dr. Eustace Hill, medical officer of health for the county of Durham and late professor of public health at Durham University.

We are indebted to Dr. JOHN C. MCVAIL for the following:

The generation to which Dr. Alfred Hill belonged has passed away. No one now in the fighting line of public health can properly claim to have been his contemporary, though the later years of his work coincided with the earlier years of some men who are still in the service. It is more than seventy years since Dr. Hill became a professor of chemistry in Birmingham and half a century since he was made medical officer of health under what was then the new Public Health Act. In these far-off days the work was very different from that of the present time. Lister had gone from Glasgow to Edinburgh to continue, under the inspiration of Pasteur, the laying of the foundations of modern scientific

surgery. But for preventive medicine the era of bacteriology had not dawned and the light of entomology in relation to public health was still further below the horizon. In the absence of such guidance the new medical officers of health, of whom Dr. Alfred Hill was one of the chief, were wisely relying on the establishment and maintenance of municipal cleanliness as the mainstay of their policy. Dr. Hill, both chemist and health officer, was concerning himself with and writing on such basal subjects as water supply in large towns in relation to health, house drainage, sewage disposal—a particularly difficult problem in a large city far from the sea—and the regulation of house building. At the time when he became medical officer Europe was being swept by the great pandemic of small-pox which followed the Franco-Prussian war, and health authorities and their medical advisers were realizing more clearly than they had ever done before, excepting in Germany, the need for revaccination in supplement to primary vaccination. The importance of hospital provision for the isolation of infectious diseases was also pressing itself on public and professional attention. Compulsory notification came later, and was dealt with by Birmingham's medical officer.

I had the pleasure of meeting Dr. Hill when I presided over a conference of health officers at Birmingham close on a quarter of a century ago. His work only I had known previously. I recollect him as a handsome man, of fine presence and old-fashioned courtesy. He did a great work for the industrial capital of the Midlands, and he has enjoyed a long evening of honoured retirement after his life-duty was accomplished. He leaves behind him sons who worthily and successfully follow him in the field of disease prevention, and in the education of yet another generation of doctors in the principles and practice of hygiene and public health.

ALEXANDER STEVENSON GREENWAY, T.D., Lieut.-Col. R.A.M.C. (T.F.), died at Belvedere, Kent, on February 20th, aged 69. He was educated at Edinburgh University, where he graduated M.B. and C.M. in 1874, and M.D. in 1880; he took the M.R.C.S. in 1878. After filling the posts of house-surgeon of the Hertford British Hospital in Paris, senior resident medical officer of St. Mary's Hospital, Manchester, and house-surgeon of the county hospital at Huntingdon, he went into practice at Belvedere, Erith, Kent, where he was medical officer of the Belvedere dispensary and Erith cottage hospital; surgeon to the metropolitan police, to the post office, and to the Royal Alfred Institute for Aged Seamen, and ex-president of the Belvedere and Erith Natural History and Science Society. He had served for a long time in the auxiliary medical force, volunteer and territorial, and attained the rank of lieutenant-colonel, R.A.M.C. (T.F.), on April 1st, 1908, as commandant of the 4th London (Woolwich) Field Ambulance, which post he still held when the war began in August, 1914. He had received the Territorial Decoration.

JAMES NEAL MACMULLAN, T.D., Major R.A.M.C. (T.F.), died at Woking on February 23rd. He was educated at Queen's College, Belfast, and took the Scottish triple qualification in 1893. Before the war he was in practice at Regent's Park, London. He joined the R.A.M.C. (T.F.) as lieutenant and medical officer of the Herefordshire regiment on August 1st, 1903, became captain on November 1st, 1906, and was promoted to major on August 5th, 1914. He had received the Territorial Decoration.

THE death is announced of Dr. C. T. CAMPBELL, of London, Ontario, in his 79th year. He received his medical education at Cleveland, obtaining his licence from the Canadian Board in 1856. He was formerly a member of the Ontario Medical Council, became vice-president of the Canadian Medical Council in 1892, and president in the following year. He served for many years on the London Board of Education, of which he was chairman in 1884; he was also an alderman, and in 1905 mayor of the city. He was much interested in historical research, was first president of the local historical society, and was a contributor on historical subjects to various magazines. He was twice married, and is survived by his widow.

ACCORDING to the *Deutsche medizinische Wochenschrift*, the losses of Germany in the war were 1,808,545 dead and 4,247,143 wounded, the medical profession figuring in these totals with 1,675 dead and 2,200 wounded.

Universities and Colleges.

UNIVERSITY OF MANCHESTER.

DR. H. R. DEAN, as announced last week, has been appointed professor of bacteriology at University College Hospital Medical School, London, and has in consequence resigned the Proctor chair of pathology and pathological anatomy. The Council, in accepting the resignation with much regret, expressed to Professor Dean their cordial thanks for the valuable services he has rendered to the University during the last seven years in teaching, in research, and, in particular, in the reconstruction of the department of pathology. They offered their congratulations to Professor Dean on the important post to which he has been appointed, and wished him all success and happiness.

The Council also expressed congratulation to the following on their recommendation for election as Fellows of the Royal Society: Professor F. L. Pyman, formerly a student, and at present professor of technological chemistry in the University; Professor D. M. S. Watson, formerly a student, and later a member of the staff of the University; Mr. C. G. Darwin, formerly a member of the staff of the University.

The Services.

TUBERCULOUS OFFICERS AND NURSES.

THE Ministry of Pensions announces that officers and nurses suffering from pulmonary tuberculosis accepted by the Ministry as attributable to or aggravated by service in the great war will, under certain conditions, receive retired pay or pensions at special rates for certain periods:

1. Officers and nurses who have completed a course of sanatorium treatment, and who are certified as likely to benefit by a further course of extended treatment combined with training will, if they decide to undergo such a course, continue to receive retired pay or pension at the rate for the highest degree of disablement (100 per cent.) from the commencement of the course until its termination. After the further course has terminated they are entitled without further medical examination by a Ministry Board to retired pay at the rate of 100 per cent. for a period of six months, and at the minimum rate of 50 per cent. for two years thereafter. These awards, which may cover a period of two and a half years in all, are subject to the condition that the officers present themselves for examination by a tuberculosis officer from time to time as directed. The concession applies only to officers and nurses certified as likely to benefit by the further course referred to, and agreeing to undergo and undergoing such a course.

2. Officers and nurses who are discharged from sanatoriums on or after December 22nd, 1921, will be granted retired pay or pension at the special rate of 100 per cent. for a period of six months after leaving the institution, provided that the course of treatment was satisfactorily completed, and that the pecuniary circumstances of the officer or nurse are such that worry and uncertainty which might be prejudicial to health would result if the special rates were not granted. The grant will not be retrospective before December 22nd, 1921. At the end of the six months period an award will be made at the rate of not less than 50 per cent. for a further two years, subject to the same conditions, and provided that the officer or nurse continues to comply with the medical requirements of the Ministry.

DEATHS IN THE SERVICES.

Lieut.-Colonel Frederick Rowland Barker, M.B.E., R.A.M.C. (retired), died at Worthing on January 22nd, aged 68. He was born at Stoke-on-Trent on March 18th, 1853, and received his medical education at St. Thomas's Hospital. He took the M.R.C.S. in 1877, the L.S.A. in 1878, the M.B.London in 1879, and the D.P.H.Cantab. in 1887. He served as surgeon to the Red Cross Society in the Turko-Servian war of 1876–77, receiving the fifth class of the Medjidie, and as surgeon to the Stafford House Committee in the Russo-Turkish war of 1877–78, receiving the Turkish war medal and the fourth class of the Order of the Osmanli. At that time the terms of service in the Army Medical Department were not considered satisfactory by the profession, and finding it impossible to obtain medical officers of good qualifications on the old terms, the War Office found it necessary to offer much better terms of service. The first competitive examination held under the new and improved terms took place in the latter part of 1879, the selected candidates being commissioned after their Netley training from March 6th, 1880. There was a great rush of candidates for commissions under the new terms, and at the examination Barker headed the list of successful candidates, the second place being taken by one who was destined to go much further, Sir Alfred Keogh. Barker became lieutenant-colonel on March 6th, 1900, and retired on September 15th, 1900. He served in the South African war in 1899–1900, receiving the Queen's medal with three clasps.

Major Walter Tibbits, R.A.M.C.(retired), was killed by a fall from a train near Stowmarket on January 15th. He was born at Warwick on March 25th, 1870, and educated at Edinburgh, where he graduated M.B. and C.M. in 1892, and at the Middlesex Hospital. Entering the army as surgeon-lieutenant on January 29th, 1894, he became major on October 29th, 1905, but was not further promoted, and retired after the war was over, on February 1st, 1920. He was still employed, however, after retirement in medical charge of the dépôt at Ipswich. He served with No. 1 General Hospital in the Tirah campaign on the North-West frontier of India in 1897–98, and in the South African war in 1901–02, receiving the Queen's medal with two clasps.

Captain Andrew Cooper Cassells, late South African Medical Corps, died at Maritzburg, South Africa, on December 18th, after a long illness. He was the fourth son of James Cassells, of Leven, and was educated at Dundee and St. Andrews, where he graduated as M.B. and Ch.B. in 1915, after which he took a commission as lieutenant in the Special Reserve of the R.A.M.C., subsequently being transferred to the S.A.M.C.

Medical News.

THE forty-fourth annual meeting and St. Patrick's Day dinner of the Irish Medical Schools' and Graduates' Association will be held, on March 16th, at Pagani's Restaurant, Great Portland Street, when Major-General Wallace Kenny, C.B., will resign the presidency to Dr. J. A. Macdonald, who will take the chair. The Right Hon. Edward Shortt, Home Secretary, will be the special guest at the dinner, on which occasion the Arnott gold medal of the association will be presented to Lieut.-Colonel Robert McCarrison, I.M.S., M.D., LL.D. Tickets (9s. each) may be obtained for the dinner from Dr. F. Howard Humphris, 8, West Chapel Street, W.1.

AT a meeting of the Manchester Clinical Society, to be held in the physiological theatre of the University of Manchester on Thursday, March 16th, at 4.30 p.m., Professor Leonard Hill will give an address on the physiological principles underlying light treatment and heliotherapy; all medical practitioners are cordially invited.

WE are asked to state that hospitals in the county of London, or within nine miles of Charing Cross, desiring to participate in the grants made by the King Edward's Hospital Fund for London for the year 1922, must make application before March 31st to the Honorary Secretaries, 7, Walbrook, E.C.4. Applications will also be considered from convalescent homes which are situated within the above boundaries, or which, being situated outside, take a large proportion of patients from London.

A DEPUTATION, organized by the Catholic Women's League, waited recently upon the Minister of Health to protest against the active propaganda carried on by individuals and certain public bodies regarding birth control. The deputation asked as ratepayers that advice or lectures on the subject should not be given in the maternity and child welfare centres which received grants from the Ministry of Health. The deputation was sympathetically received by Sir Alfred Mond.

A POST-GRADUATE course dealing with recent ideas in medicine and surgery on diseases of the liver, bile ducts, and pancreas, and on diabetes will be held at the Hôtel Dieu, Paris, commencing on April 10th, and continuing for two weeks. The instruction will take a practical form, and will be carried out under the direction of Dr. Maurice Villaret, with the collaboration of M. Okinczyc and others. The fee is 150 francs, and further information may be had from the secretary of the Faculty of Medicine, Paris.

CAPTAIN STEWART RANKEN DOUGLAS, I.M.S. (ret.), Director of the Department of Bacteriology, Protistology, and Experimental Pathology at the National Institute for Medical Research, is among the fifteen candidates selected by the council of the Royal Society for election into the society.

THE proceedings on the conference on lunacy administration in London on January 19th and 20th, under the presidency of Sir Frederick Willis, chairman of the Board of Control, were reported in our issue of January 28th. An official verbatim report has now been issued by the Stationery Office, and can be purchased through any bookseller, price 2s. 6d.

ALTHOUGH the City of New York has been experiencing an outbreak of pneumonia and influenza, the bulletin issued by the Health Department on February 2nd appears to show that down to that date there had been no unusual prevalence of these diseases in the State of New York. In spite of the recommendation of vaccines for the prevention of pneumonia by the New York City health commissioner the State Health Department does not favour their use, the report indicating that during the last epidemic little or no protection against pneumonia appeared to be afforded by the use of vaccines.

A RESOLUTION that dogs should be exempted from scientific experimentation was put before the New York City Federation of Women's Clubs at its annual convention, but was defeated by an overwhelming vote.

A NEW radium institute has recently been opened at Naples with much ceremony and a banquet; its foundation is due to the initiative of Dr. R. Stanziale, professor of dermatology and syphilis.

AN additional telephone exchange was opened within the boundaries of the City of London on March 4th. The new "Bishopsgate" exchange is intended to serve an area embracing the thoroughfare of that name and extending to Whitechapel, Bethnal Green, and Haggerston. As it is situated within five miles of Oxford Circus, the central telephone measuring point, calls may be passed for 1½d. up to a distance of ten miles from Oxford Circus.

THE International Committee set up by the International Labour Office of the League of Nations to consider problems of war disablement met in Geneva on March 2nd. The British representative on the Committee is Major J. B. Cohen, M.P.; the Health Section of the League of Nations, the Red Cross Organizations, and the Inter-Allied Committee of Disabled Men are also represented. The subjects for discussion include the holding of an international exhibition to show the progress made in the manufacture and use of artificial limbs, and the administrative organization of prosthesis and orthopedy. A comparative study of the existing arrangements in the various countries and the results obtained will be undertaken, and the future of the organization for the supply of limbs will be discussed. The third question before the meeting is the organization of medical treatment for disabled men. This will also be dealt with by a comparative study of the existing national systems, and the Committee will be invited to discuss the methods by which men disabled in industry may receive the same benefits as men disabled in the war. Special consideration will be given to the position of disabled men who live abroad, and may therefore be unable to obtain prosthesis and medical treatment. Some States have concluded reciprocal agreements in order to deal with cases of this kind. The Committee will consider the possibility of promoting the wider adoption of such agreements, and the practicability of securing an international convention laying down fundamental principles for the international protection of men disabled in the war.

DR. C. A. MOORE, on the occasion of his retirement from the post of medical officer to the Leicester Post Office after thirty years' service, has been presented by the various staffs with an electro-plated breakfast dish, gold cuff-links and studs, and a case of pipes and a pouch, as a mark of their appreciation for his courteous attention to them during his term of office.

AT the January matriculation examination of the University of London there were 101 successful candidates in the first division and 984 in the second division; the supplementary certificate in Latin was granted to 50 candidates.

THE number of prescriptions for alcoholic liquor issued in Ontario during December, 1921, was 71,028; 311 medical practitioners were suspended by the Board of License Commissioners for Ontario for exceeding their monthly quota of fifty prescriptions.

AT Durham assizes, on March 3rd, Mr. Justice Bray passed sentence of twelve months' imprisonment in the second division upon Edward Ernest Willis, aged 50, a registered medical practitioner, who was found guilty of the manslaughter of the wife of a miner at New Herrington on October 13th, 1921. The prosecution alleged that in operating on the deceased woman Dr. Willis did not use reasonable skill and care, and was guilty of criminal negligence. Evidence was given that he attempted to perform an obstetrical operation while under the influence of drink, and fatal internal injuries were inflicted upon the patient. The accused held the salaried post of medical officer to the Newbottle Miners' Medical Club.

THE late Mr. E. J. Maher-Smith has bequeathed £2,000 to the Swansea General and Eye Hospital and £1,000 to Guy's Hospital. In addition Swansea Hospital receives one-fourth and Guy's Hospital one-eighth of the residual estate.

AT the meeting of the Society of Public Analysts, on March 1st, Mr. Raymond V. Wadsworth reported that the analyses of cocao beans from twenty-one different areas showed a variation in the theobromine content of the nib from 2.2 per cent. to 3.9 per cent., calculated on the dry fat-free material. The variation was due, first, to the variety of the bean, the Criollo bean containing much less theobromine than the Forestero, and, secondly, to the amount of fermentation, for by it the theobromine was considerably reduced. In the shell the theobromine varied much more. During the process of fermentation the alkaloid is brought by the sweatings from the nib to the shell, and the amount naturally present in the shell, 0.19 per cent., might thus be increased to 2.89 per cent. During roasting there was practically no loss of theobromine from either nib or shell. The analyses of twenty-two brands of commercial cocoas showed a variation in the theobromine content of 2.39 per cent. to 3.55 per cent., calculated on the dry fat-free cocoa.

AT a special council meeting of King Edward's Hospital Fund for London, held on March 8th, the main lines of a contributory scheme for the London hospitals and a combined public appeal were approved.

THE number of deaths from influenza during the week ending March 4th continued to show a decline. In the 105 great towns it was 306, against 525 in the previous week; in London it was 43, against 77.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"J. B." would be glad of advice as to the best treatment for broken chilblains of a very painful nature on the toes of a farmer aged 65 years.

VITAMINS.

"F. R. H."—Vitamins are not destroyed by freezing or refrigeration. The rate of destruction of vitamins depends more upon the length of time to which they are exposed to oxygen than upon the temperature. If exposed to oxygen vitamins are slowly destroyed, even when kept at freezing point. They are destroyed less rapidly at low temperatures than at high temperatures. The optimum conditions for preserving vitamins appear to be: (1) absence of oxygen; (2) neutral or feebly acid reaction; (3) dry condition (rather than in solution); (4) low temperature.

TESTICULAR NEURALGIA.

DR. M. W. BROWDY (London) writes: In reply to "E." (p. 374), I would advise him to have a urethroscopic examination made of the posterior urethra, as I have seen a good many cases in which the neurosis arises from chronic disease of the colliculus seminalis. In these cases excision of the testicles would be a calamity.

INCOME TAX.

"D. K." bought a practice for £2,800, paid £1,000 down, and is paying the remainder by instalments of £600 per annum.

*** He can claim no allowance for the payments, which are of a capital nature.

"COTSWOLD" is paying premium for a deferred annuity becoming payable in 1924 for four years. He asks if he can claim an allowance.

*** Since 1916 payments to life assurance companies are not proper subjects for claim unless the benefit is a capital sum payable on death. In this case no allowance seems to be due.

"VENATOR" asks what deductions can be claimed as living expenses by an outdoor assistant?

*** There is no ground for claim in respect of living expenses; an "indoor assistant" who receives a portion of his total remuneration in kind—and therefore in a form rendering it unassessable to income tax—is in a peculiarly favourable position as compared with other persons whether assistants or practitioners.

"W. R." inquires as to the deduction of certain expenses.

*** (1) The fraction of general expenses, such as rent, light, etc., varies with the locality; in a provincial town a common proportion is one-half. (2) The amount to be allowed for domestic staff is the sum—whether expended as wages or in "keep"—applicable to that portion of the total service which is employed in cleaning the waiting- and consulting-rooms and similar professional matters. If the whole of the cost of a maid is allowed "W. R." is not likely to obtain more. (3) Nothing is allowable for depreciation of a car used in professional work, but the cost of replacement can be deducted as and when incurred.

LETTERS, NOTES, ETC.

THE TREATMENT OF PNEUMONIA.

DR. H. L. GORDON (Accrington) writes: May I suggest to anyone not satisfied with his own treatment of this dread disease the following: ℞ Pot. iod. ʒj, liq. ammon. acet. conc. ʒiij, aq. ad ʒviij. ʒss. every two hours. As pneumococcal invasion increases blood pressure, the indication is to lower it. This I claim as the rationale of the treatment suggested. I am satisfied with it, but it must be begun as soon as the nature of the case is suspected and not as a last resource.

DR. ARTHUR J. MATHISON (Hornsey) writes: In the JOURNAL of February 25th, on p. 334, "M.D." writes on the treatment of pneumonia. It is necessary always to remember the great difference between lobar and lobular pneumonia—a difference better set forth in those other names, croupous and catarrhal. It is also necessary to remember that the lobular pneumonia, generalized, closely resembles the other form, giving a large area of solid lung so far as percussion and auscultation discover. The disrepute into which creosote may have fallen is probably due to this mistake. I do not put forward the creosote and potassium iodide treatment as a specific in lobular, but only in lobar pneumonia. During the epidemic of influenza in 1918-19 I found cases that would not yield to the treatment, and I hastily doubled the dose and wrote to the JOURNAL to that effect. But now I see that those cases were probably either (*a*) cases of mixed infection, or (*b*) cases of lobular pneumonia, or both (*a*) and (*b*). The mixture should stand as used with so much success. Every four hours till the temperature falls give 2½ minims of creosote and 5 grains of potassium iodide. The mixture should only be expected to act as a specific in lobar pneumonia and never in cases with failing heart, in which cases the heart would be still further depressed by a mixture unsuitable at so late a stage. Surely to be a specific for so widespread and fatal a disease as lobar pneumonia is quite distinction enough for this simple combination of drugs without adding the very doubtful reputation it might earn in the other very different malady. Brandy is not as a rule necessary.

AMMONIUM CHLORIDE IN GLYCOSURIA.

DR. T. HOUGHTON MITCHELL (Ambleside, Westmorland) writes: May I draw the attention of readers to the efficiency of ammonium chloride in glycosuria of hepatic origin? Given in full doses three times a day before meals, combined with taraxacum, compound spirits of ammonia, and nux vomica, it speedily reduces the sugar content and produces a rapid fall in the specific gravity of the urine.

DEPILATORIES.

WITH reference to our note on depilatories (February 11th, 1922, p. 252), a correspondent writes that the advice to use a safety razor in cases of unwanted growth of hair is often met by the objection that the constant shaving will cause the hair to come more quickly and of stronger growth. He asks if there is any ground for this apprehension, and whether this objection does not apply also to the use of barium paste on account of the irritation which it causes. Constant shaving does appear to cause the hair to grow more strongly, but the only real objection to shaving seems to be that it has to be done at frequent intervals in any case.

GIGANTISM.

DR. H. E. BLOXSOME (Fairford, Gloucestershire) writes: A girl was brought to me recently as her rate of growth was causing some alarm. I could not find anything abnormal except her size. She is 14 years old, 6 ft. high, and weighs 15 st. She is immensely broad and deep in the chest and perfectly well-proportioned everywhere. She is rather fat, but the weight is as much bone as fat. She is quite intelligent. The mother and father are ordinary healthy, medium-sized people, but the daughter is surely a giantess.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 37, 38, 39, and 40 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 35 and 37.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column ...	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.